

## ***Pest Management News***

Dr. John D. Hopkins, Assistant Professor and Extension Entomologist – Coeditor  
Dr. Kelly M. Loftin, Associate Professor and Extension Entomologist – Coeditor

### **Contributors**

Rex Roberg, Wildlife Management Program Associate  
Dr. Bob Scott, Associate Professor and Extension Weed Scientist  
Dr. Stephen R. Vann, Assistant Professor and Extension Plant Pathologist

Letter #4

August 31, 2008

### **Can a Bed Bug Go to College?**

Dr. John D. Hopkins

With students moving into dorms and preparing to start the fall semester, many college and university officials responsible for student housing and dorm life already know the answer to the question. Bed bugs are more frequently being found in dorm rooms and that should not come as a big surprise. Bed bugs have been making a steady come-back over the past few years. They're being found in public transit vehicles, in movie theaters, in cruise ships, and in all types of hospitality accommodations. With this being the case, college dormitories are an ideal bed bug habitat. The rooms are small and crowded with students from every corner of the world. If a student should wake up with red itchy welts, college health and housing officials should be immediately notified so that appropriate pest control measures can be initiated. Also, all laundry should go into a trash bag and then right into a washing machine on the hot cycle. Laundry should then be dried in a clothes dryer. Dr. Mike Potter of the University of Kentucky says that as little as five or 10 minutes in the dryer on high heat kills the pests, but that cold will not kill the eggs and not all the adults.



With many dorm rooms being vacant over the summer, you might wonder how a bed bug could survive so long without people to feed on. Well, bed bugs under, ideal conditions, can live up to a year without a blood meal. This being the case, a dorm room left empty over the summer poses only

a brief inconvenience for these blood-thirsty pests. One other thing for students and parents to remember is that unlike cockroaches, bed bugs aren't an indicator of bad housekeeping or unsanitary conditions. Social status doesn't mean a thing to a bed bug; everyone is a potential blood meal.

Before World War II, bed bug infestations were common in the U.S., but they were virtually eradicated through improvements in hygiene and the widespread use of DDT in the 1940s and 1950s. Bed bugs have been absent from the U.S. for so long that some people thought they were a myth. However, many travelers and sometimes college students are waking up with itchy bites and are now realizing that "THEY'RE BACK!" Many pest control professionals are reporting a dramatic increase in infestations throughout the country. Although bed bugs have continued to be commonly present in various cities and countries around the world, and have sporadically been locally serious pests, they had seemed to nearly disappear in most developed countries. Some reasons why bed bugs have been making a come-back include:

- Greatly increased human mobility, along with the fact that bed bugs are great hitchhikers on luggage and other things with cracks and crevices, has made it easier for them to be spread quickly to any country, city, "institution of higher learning" or home; and across all social and economic levels.
- Incorrect identification or inadequate surveillance, may lead to not finding all of the population actually present.
- In the past decade and a half, there has been a significant switch to using mainly baits to control cockroaches and similar pests. Bed bugs feed only on blood and would not consume or possibly even contact such baits. As such, these baits would not affect the bed bug population.
- In the recent past, most pest control professionals heavily relied on pyrethroid insecticides for nearly all indoor residual pesticide treatments. Bed bugs are good at detecting and avoiding many chemicals and some pyrethroids are repellent (do-it-yourself bug bombs or sprays will not work). This repellency could cause a bed bug population to split up, spread out or move to one or more new locations. On a positive note, newer non-repellant insecticides are now available to pest management professionals and may reduce or eliminate the repellency problem.

Some of the most common ways by which new bed bug infestations may be introduced include:

- Spending a night (or longer) in an environment, which is already infested by bed bugs.
- Having a guest come to visit who has come from an infested environment.
- Renting furniture or buying used furniture or bedding at a yard sale or flea market.
- Picking up discarded bedding or furniture from a curbside, trash collection point or dumpster.

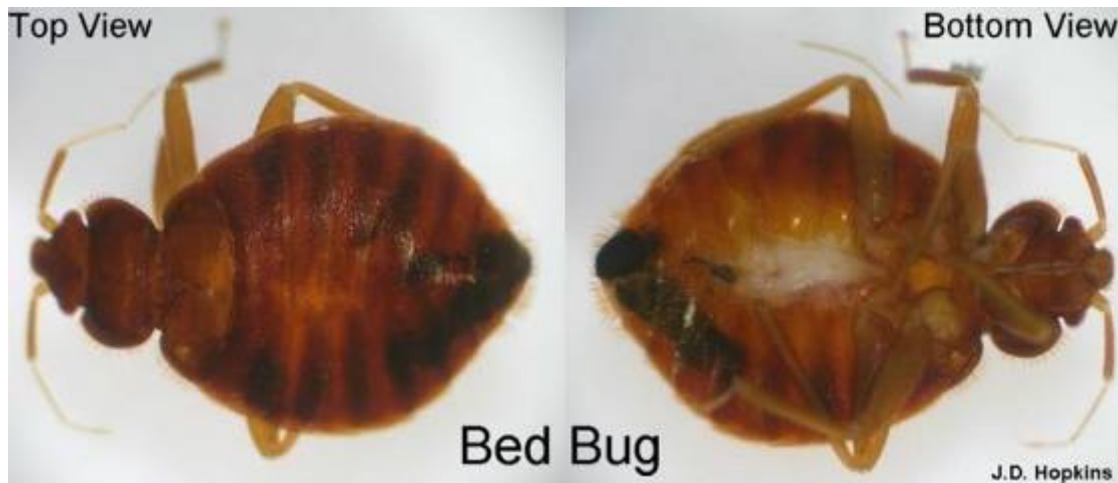
Bed bugs are small, 3/16 inch long, broadly oval, flat, brown to reddish-brown true bugs (Order: Hemiptera), with a 3-segmented beak, 4-segmented antennae, and vestigial wings. They have very thin, vertically-flattened bodies covered with short, golden-colored hairs. Males have somewhat pointed abdomen tips; females and older nymphs have broadly rounded abdomen tips. When fully engorged, an adult bed bug's body looks somewhat cigar-shaped.

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.



Bed bugs feed only on blood from mammals or birds. Their life cycle, under good conditions (75–80 %RH, 83-90°F) takes four to five weeks to go from egg to egg. They attach their small (1 mm long) pearly-whitish eggs to surfaces, usually in crevices where the bugs hide in loose groups or clusters (harborages). They have five nymphal instars, and each needs at least one blood meal to develop to the next instar. A female may lay 200 to 500 eggs in her lifetime. These bugs may produce a series of bites in rows or fairly straight lines. These feeding bites occur usually along an edge beside an item of clothing or a bed sheet, which was lying against their victim's skin. Feeding duration for a bed bug can range from 3 to 12 minutes and bugs will sometimes “void” remains of earlier blood meals while feeding. This produces the typical “rusty” spots seen on bed clothing in many infested bedrooms. Bed bugs have been observed feeding at temperatures as low as 44°F. Bed bugs give off a distinctive, “musty, sweetish” odor and where numerous bugs have congregated in a shared harborage for a long time, the smell may be very obvious to some people. Bed bugs routinely deposit partially-digested remnants of prior blood meals in their hiding places, as a “rusty” or tarry residue. Cast skins usually also accumulate in harborages. Bed bugs are nocturnal, hiding in many places near their hosts, including: bed frame joints, cracks and crevices, inside box springs, mattress seams, along ‘tack strips’ under edges of rugs, in furniture drawers or hollow legs and even behind wallpaper or pictures on nearby walls. These bugs will readily travel 5–20 ft. from an established harborage to feed on a human. Travel distances of more than 100 ft. have also been recorded. Although they seem to “prefer” humans, bed bugs very readily feed on birds, rodents or other mammals.



Twenty-eight human pathogens have been found naturally infecting the common bed bug, but bed bugs have never been proven to biologically transmit or vector these pathogens to humans. Although their bite is often nearly undetectable, their saliva contains proteins which can cause a progressive sensitivity to repeated bites (there are typically five stages of: no reaction, delayed reaction, delayed

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

and immediate reactions, immediate reaction only and finally no reaction; depending on the combined biting intensity and frequency). Humans who are frequently bitten by large numbers of bed bugs may develop a condition which can include nervousness, nearly constant agitation (“jumpiness”) and sleeplessness. In such cases, removing either the bed bugs (by physical or chemical elimination), or relocating the person, may cause the condition to disappear in about a month. Several different species of Cimicidae may bite humans, including: Tropical Bed Bugs, Poultry Bugs, Swallow Bugs, and several species of Bat Bugs.

The average person faced with a bed bug problem usually lacks the knowledge and persistence necessary to effectively deal with this pest and also does not have access to some of the insecticides that are available to professional pest controllers. When trying to control a bed bug infestation in the home or dorm, college officials and pest management professionals should keep the following considerations in mind:



- Sanitation alone will not eliminate these bugs!
- Do a thorough initial survey and careful ID to be sure what, and where, the pests are. Significant portions of many infestations will be found in areas off the bed (e.g., under carpet edges, in other furniture, under baseboards). Due to their small size and cryptic behavior, young bed bugs can easily be missed in low level infestations even by a highly trained and experienced professional.
- Consider using a vacuum to initially collect (fatally) as many bed bugs as you can. Low-moisture steaming devices have been used with success to kill bed bugs in seams of mattresses, but residual moisture can sometimes be a problem.
- Treat all detected harborage sites with a properly labeled residual insecticide.
- Partly because of currently limited chemical insecticide options, it can be extremely difficult to eliminate an established infestation of bed bugs. Consider using non-repellent active ingredients or the least repellent formulations available for residual treatments; and consider using new products, including IGRs, which are being developed and labeled specifically for use against bed bugs.
- Seal shut all cracks, crevices, or joints through which the bugs may be passing to get to their hosts.
- Consider using a properly labeled dust in electric junction boxes, or other voids, which cannot be sealed.
- Professionals should educate all involved about the bugs, about suggested management strategy (and what part they have in it), and about the fact that these bugs are not known to transmit any human pathogens, despite extensive testing.
- Bed bug infestations are seldom controlled in a single visit by a pest control professional. It usually requires multiple visits, a very thorough effort with great attention to detail, and client cooperation to achieve control. It takes longer without good client cooperation.
- These bugs are very resilient and they may become a problem again months after they were

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

apparently eliminated.

- The simple vacating of an infested area is not an effective control strategy, because bed bugs will often leave an empty or partially-treated room and move to new sites several rooms, or several floors, away. This often happens in hotels, apartments, dormitories or similar large buildings with connecting or attached units.
- Launder all bed clothing (or other cloth items) with hot soapy water to kill and remove any hiding bugs or attached eggs. Heat of at least 140°F for more than 20 min. should kill nearly every kind of arthropod, including bed bugs. Soapy water, or cold temperatures (for a much longer time), will also kill them, but the efficiency of each of these methods varies with particular circumstances.
- Place sticky traps (monitors) in likely pathways between harborage sites and beds (hosts).
- Consider placing physical barriers (specific to local conditions) between harborage sites and the beds (hosts).

Now, if you can.....“sleep tight and don’t let the bed bugs bite.”

## **Fall Armyworm Update**

Kelly M. Loftin

In the previous issue of Pest Management News, I mentioned that we were beginning to see fall armyworms in pastures. Now, after the rainfall, the grass is growing again and reports are becoming more frequent with extreme forage losses in some cases. Significant infestations recently occurred in some central and western Arkansas pastures. Other areas of the state have also reported significant populations. Please encourage your producers to diligently scout their pastures for fall armyworms so that losses can be reduced. Information on fall armyworm biology and scouting was listed in the last newsletter; and is available at the following web link:

[http://www.aragriculture.org/News/pestmgmt/2008/july312008\\_no3.pdf](http://www.aragriculture.org/News/pestmgmt/2008/july312008_no3.pdf)

## **Insecticides Recently Labeled for Use Against Armyworms in Pastures**

Some lambda-cyhalothrin formulations (a synthetic pyrethroid) are now available for use against fall armyworms. Karate with Zeon Technology (22.8% lambda-cyhalothrin), Warrior II with Zeon Technology (22.8% lambda-cyhalothrin) and Warrior with Zeon Technology (11.4 % lambda-cyhalothrin) are the formulations now labeled against armyworms (beet and fall) in grass forage, fodder and hay. The rate for Karate Z and Warrior II against fall armyworms is 1.28–1.92 fl oz/ acre (0.20–0.03 lb a.i./acre). For Warrior, use 2.56–3.84 fl oz/acre to obtain the 0.02–0.03 lb a.i./acre rate. Grass can be grazed or cut for forage 0 days after application. However, do not cut grass that will be dried and harvested for hay until 7 days following application. No more than 0.03 lb a.i./acre can be applied per cutting and no more than 0.09 lb a.i./acre can be applied per season. All three formulations are restricted-use pesticides and require a private pesticide applicators license.

Baythroid XL (12.70% beta-cyfluthrin, also a synthetic pyrethroid) was also recently labeled for use against fall armyworms in pastures and hayfields. The application rate for this formulation against 1<sup>st</sup> and 2<sup>nd</sup> instar armyworms is 1.6–1.9 fl oz./acre (0.013–0.015 lb a.i./acre). Grass can be grazed or cut for hay 0 days after application. The maximum use rate for a 5 day interval is 2.8 fl oz/acre (0.022 lb

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

a.i./acre). The maximum amount that can be applied per season is 11.3 fl oz/acre (0.089 lb a.i./acre). Baythroid XL is a restricted-use pesticide and requires a private pesticide applicators license.

Because neither the beta-cyfluthrin nor the lambda-cyhalothrin formulations were labeled at the time of publication, they are not listed in the pasture section of the 2008 MP 144 (Insecticide Recommendations for Arkansas). For a listing of other products labeled for use in pastures consult the MP 144 available at: ([http://www.uaex.edu/Other\\_Areas/publications/PDF/MP144/C\\_Pasture.pdf](http://www.uaex.edu/Other_Areas/publications/PDF/MP144/C_Pasture.pdf) ).

We are searching for a pasture site to evaluate these new formulations. Please let us know if locate a fall armyworm infested site suitable for an evaluation.

Labels for the recently registered insecticide formulations that can be used against fall armyworms in pastures are available from the web links below.

Karate with Zeon technology

<http://www.cdms.net/LDat/ld5J2011.pdf>

Warrior II with Zeon Technology

<http://www.cdms.net/LDat/ld8JD000.pdf>

Warrior with Zeon Technology

<http://www.cdms.net/LDat/ld5JH041.pdf>

Baythroid XL

<http://www.cdms.net/LDat/ld7JO034.pdf>

## **Horse and Deer Flies**

Kelly M. Loftin

Within the last few weeks, I've received several calls concerning horse flies feeding on cattle, horses and people. One producer was concerned with horse fly abundance and its association with anaplasmosis. Other questions were: How can I protect my cattle or horses from horse flies? Can I protect myself from biting horse and deer flies?

Horse and deer flies are both members of the Family Tabanidae and can be distinguished from one another by size and wing coloration. Horse flies (Figure 1) are larger (from  $\frac{3}{4}$  to greater than an inch long) than deer flies (slightly larger than house flies), heavy-bodied and large-headed. Deer flies (Figure 2) have markings on their wings while horse flies wings are clear or of a uniform color. Both are painful biters and readily feed on livestock, wildlife and humans; however, horse flies are commonly associated with feeding on livestock while deer flies frequently attack humans.

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.



**Figure 1. Horse fly. (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).**



**Figure 2. Deer fly (*Chrysops reicherti*). (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).**

Most tabanid eggs (Figures 3) are laid in layered masses on vegetation overhanging moist soil or aquatic habitats such as marches or pond margins. Eggs hatch and larvae develop in moist soil or aquatic and semi-aquatic habitats. Developing larvae feed on annelids, molluscs or insect larvae. Some are even canalabistic. Depending on the species, the larval period lasts from 1 month to over a year (Figure 4). Fully mature larvae migrate to a drier area of their larval habitat and pupate. Adults emerge from the pupal stage from 1 to 4 weeks following pupation.



**Figure 3. Horse fly eggs on vegetation. (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).**



**Figure 4. Horse fly (*Tabanus atratus*) larva. (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).**

Horse and deer flies are attracted to the carbon dioxide that we and other animals exhale. They also hone in on movement, shiny surfaces and warmth. Once they find a suitable host, they use their knife-like mouthparts to slice the skin and feed on the pool of blood that forms. One USDA publication estimated that 20-30 horse flies feeding for 6 hours would take about 20 teaspoons ( $\approx 100$  ml.) of

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

blood. Horse flies feed during the day and prefer sunny areas, seldom entering barns or heavily shaded areas.

Horse flies can be serious pests of cattle and horse through irritation, blood loss and potential disease transmission. The most important species include the black horse fly (*Tabanus atratus* Fabricius), the black striped horse fly (*Hybomitra lasiophthalma* Macquart), the lined horse fly (*Tabanus lineola* Fabricius) and the autumn horse fly (*Tabanus sulcifrons* Macquart) (Figures 5-8). Horse flies are mechanical vectors of hog cholera, equine infectious anemia, anaplasmosis and tularemia; and biological vectors of *Elaeophora schneideri*, a filarial nematode causing disease in wild ruminants primarily in the Rocky Mountain States.



**Figure 5. Black horse fly (*Tabanus atratus*).** (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).



**Figure 6. Black striped horse fly (*Hybomitra lasiophthalma*).** (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).



**Figure 7. Lined horse fly (*Tabanus lineola*).** (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).



**Figure 8. Autumn horse fly (*Tabanus sulcifrons*).** (Photo credit: Sturgis McKeever, Georgia Southern University, Bugwood.org).

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

Horse flies are effective mechanical disease vectors because they take large blood meals and, as a result of their painful feeding, are often interrupted during feeding. They inject an anticoagulant to prevent blood clotting, sponge up the blood and feed until they are replete with blood (usually taking 3 to 5 minutes). If a fly is interrupted during blood feeding, it will either find another spot on that animal or find another animal to feed upon. Anaplasmosis in cattle and equine infectious anemia in horses may be transmitted from an infected or carrier animal to a susceptible animal by bloody mouthparts, if a female fly is interrupted during feeding. An experimental anaplasmosis vaccine, developed by LSU researchers, is available for use in cattle. Additional information on this vaccine is available at: <http://www.anaplasmosisvaccine.com/home.html> . Currently, no vaccine is available for equine infectious anemia in horses.

#### Personal protection:

Don light-colored clothes when working or recreating in horse or deer fly infested areas. If you are caught off-guard without the proper clothing or repellent, remember that horse and deer flies are less likely to enter shelters and heavily-shaded areas.

Humans can help protect themselves from deer and horse fly bites through repellents routinely used to protect against mosquitoes. Formulations containing DEET can provide a few hours of protection. Clothing only repellents containing permethrin (Permanone and others) can also provide protection. Never apply permethrin directly to exposed skin and always allow clothing to dry completely before wearing. Closely follow all label directions and precautions for both permethrin and DEET.

#### Protecting livestock:

Horse flies are difficult to control for a number of factors. First, the large size of the horse fly increases the dose required to produce mortality. This coupled with the brief time period a fly would be exposed to the insecticide while feeding on a treated animal adds to control difficulty. Also, the horse fly has the ability to fly a considerable distance from the emergence site to the host and has a wide range of larval habitats that limit larval control. Horses and other livestock can be protected with pyrethroid insecticides (such as permethrin). This insecticide is irritating to horse flies and will cause them to leave before they have a chance to bite. Often the flies are only repelled from the treated areas and will bite untreated areas of the animals such as legs or underbelly so thorough coverage is important. Repeated application may be necessary. Forced-use self treatment sprayers have been used with some success to manage horse flies on cattle. Some permethrin formulation will contain a synergist (piperonyl butoxide) and an oil-based carrier, which provides longer lasting effects. Always read the label and follow all directions and precautions when using these insecticides.

It is nearly impossible to locate and eliminate horse and deer fly breeding sites. If you did get lucky enough to find the breeding site, it may be too large to eliminate or elimination would result in destruction of environmentally-sensitive wetlands. Bushhogging around swampy areas or ponds may provide limited population reduction because horse flies lay eggs on vegetation overhanging water or moist soil. However, keep in mind that horse flies will travel long distances so other breeding areas beyond your control could be the source of your horse or deer fly problem. Remember, shelters will provide relief because horse flies prefer sunny areas and seldom enter barns or heavily-shaded areas. However, animals are not grazing when hiding from horse flies.

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

## **Dogwood Anthracnose In Arkansas**

Stephen R. Vann

Dogwood anthracnose (*Discula destructiva*) was first confirmed in Arkansas in May, 2008. A subsequent survey conducted by Plant Health Clinic personnel and other researchers indicated that this fungus disease may have already been present in the state for some time. Unlike spot anthracnose (*Elsinoe corni*), another type of fungus disease of dogwood, this particular anthracnose disease can lead to tree death under certain environmental conditions. The fungus has caused extensive mortality of dogwoods in portions along the east coast into the Southeastern United States since its introduction in the early 1970's. Dogwood anthracnose is known to infect flowering dogwood (*Cornus florida*), and to a lesser extent Kousa dogwood (*C. kousa*). *Discula destructiva* generally overwinters in infected leaves, branches and twigs. Young leaves and sprouts are especially susceptible to infection under shady and wet environments. Environmental conditions play a pivotal role in disease onset and outcome.

Symptoms of dogwood anthracnose can range from leaf lesions (blotches) (**FIG. 1**), twig blights to stem cankers. Leaves may wither, turn brown and remain attached to the twigs (**FIG. 2**). Infected twigs form a shepherd's crook reminiscent of fire blight symptoms. From the infected leaves, the pathogen can grow into branches and trunks. This disease tends to be more severe under cool (65–75°F), wet and shady conditions.



**FIG. 1. (Courtesy M. Windham)**



**FIG. 2. (Courtesy J. Robbins)**

Spores of *Discula destructiva*, which are produced on the undersides of the leaves and on branch cankers have been shown to spread on wind-borne water droplets and by some insects. One method of long-distance spread is by shipment of infected nursery stock.

Important look-alikes of dogwood anthracnose are leaf scorch (abiotic disorder) and Septoria leaf spot (*Septoria cornicola*) both of which produce symptoms, which can easily be confused with

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

dogwood anthracnose. Leaf scorch produces various degrees of tip and marginal necrosis of the foliage (**FIG. 3**). Leaf scorch is a common symptom of drought stress. It often occurs during windy, hot and dry conditions on trees not receiving adequate irrigation. Newly-transplanted trees often develop this problem. Infection from the *Septoria* fungus results in purple spots on the leaves. *Septoria* leaf spots are generally larger in diameter, somewhat angular in shape and lack the lighter-colored center that is present with spot anthracnose. This spot usually occurs late season and is of little concern to tree health.



**FIG. 3. (Courtesy A. Windham)**

In a natural setting, the dogwood usually grows as an understory tree in soils with high organic material. Since dogwoods tend to be shallow-rooted, they can be prone to drought stress when grown in full sun conditions. Although dogwood can grow nicely in full sun when cared for, they do best with full morning sun and afternoon shade. When considering dogwood as a landscape tree, be sure to: (1) Select a healthy well-adapted tree from a reputable nursery, (2) Do not transplant a tree from the “wild”, (3) Choose a good well-drained planting site, (4) Mulch with 2–3 inches of organic material, (5) Water when dry, (6) Avoid chemical or mechanical wounding (e.g. mowers and string trimmers), and (7) Scout trees often for any problems and report those to your county Extension office.

Particular attention should be paid to minimizing the potential for drought stress. Supplemental irrigations may be necessary during periods of hot and dry conditions often experienced during July and August. It is very important to avoid drought-stress conditions as they can predispose the tree to many problems including infectious diseases such as anthracnose. If overhead irrigation must be used, growers should water in the early morning so that leaves can dry out before late evening and night.

Growing disease resistant varieties of dogwood is the best method of managing dogwood anthracnose. Proper pruning and raking leaves are also useful in an overall program. For further information about spot anthracnose and dogwood anthracnose, refer to Extension Fact Sheet FSA7564 or contact your local county Extension office.

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

## **The Eastern Chipmunk**

Rex Roberg

In most cases, the first signs of chipmunks are welcomed. These small animals are both cute and innocent looking. Most people like to watch them as they forage for food and move about in the yard. But don't let their harmless looks charm you. Chipmunk infestations can quickly grow out of control and once established, they can be difficult to remove!

Each case is different, but they all start the same. One day, a cute little chipmunk is seen foraging in the yard. The homeowner leaves the animal to do as it likes not realizing what will happen. Soon, this one chipmunk becomes many. This increase in population leads to problems from the chipmunk's behavior. If you have chipmunks in your yard, you might expect to have problems.

Fifteen species of native chipmunks of the genus *Eutamias* and one of the genus *Tamias* are found in North America. The eastern chipmunk (*Tamias striatus*) is one of the most widely-distributed species, and is the only species known to inhabit Arkansas.

The eastern chipmunk is a small, brownish, ground-dwelling squirrel. It is typically 5 to 6 inches (13 to 15 cm) long and weighs about 3 ounces (90 g). It has two tan and five blackish longitudinal stripes on its back, and two tan and two brownish stripes on each side of its face. The longitudinal stripes end at the reddish rump. The tail is 3 to 4 inches (8 to 10 cm) long and hairy, but it is not bushy.



Chipmunks are often confused with thirteen-lined ground squirrels (*Spermophilus tridecemlineatus*), also called "striped gophers." The thirteen-lined ground squirrel is yellowish, lacks the facial stripes, and its tail is not as hairy as the chipmunk's. As this squirrel's name implies, it has 13 stripes extending from the shoulder to the tail on each side and on its back. When startled, a ground squirrel carries its tail horizontally along the ground; the chipmunk carries its tail upright. The thirteen-lined ground squirrel's call sounds like a high-pitched squeak, whereas chipmunks have a rather sharp "chuck-chuck-chuck" call.

**If you have chipmunks in your yard, here are some of the problems you might expect to have happen:**

- 1) Chipmunks eating garden vegetables and fruits.
- 2) Chipmunks eating from bird feeders.
- 3) Chipmunks chewing on cable lines, air conditioning pipes and electric lines.

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

- 4) Chipmunks burrowing under patio slabs, driveways and foundation walls. This undermining could lead to water getting inside your home, cracked cement slabs and broken driveways.
- 5) Flowers, bulbs and other plants being eaten or dug up.
- 6) Flea problems developing on the chipmunks and then ultimately for pets and people.
- 7) The possibility of tick-borne diseases.
- 8) Flower beds, retaining walls and trees have been tunneled into.

### **Damage Prevention and Control Methods:**

**Exclusion:** Rodent-proof construction will exclude chipmunks from structures. Use 1/4-inch (0.6-cm) mesh hardware cloth to exclude chipmunks from gardens and flower beds.

**Habitat Modification:** Store food items, such as bird seed and dog food, in rodent-proof containers. Ground covers, shrubs and wood piles should not be located adjacent to structure foundations.

**Repellents:** Area repellents: Naphthalene (moth flakes or moth balls) may be effective, if liberally applied in confined places. Taste repellents: Repellents containing bitrex, thiram, or ammonium soaps of higher fatty acids applied to flower bulbs, seeds and vegetation (not for human consumption) may control feeding damage.

**Toxicants:** None are federally-registered. Check with local extension agents or a USDA-APHIS-ADC personnel for possible Special Local Needs 24(c)-registrations.

**Trapping:** Rat-sized snap traps. Live (box or cage) traps. Glue boards.

**Shooting:** Check with your local Wildlife Officer for a depredation permit.

### **Name That Weed**

Bob Scott

This weed is a naturalized invader from Europe. It spreads by seed and is most often found on sandy, dry, or gravelly sites. It produces sharply-pointed burs that stick painfully in bare feet and cause bicycle flats, reducing the recreational use of many areas. Seeds may go through even light truck tires. It is a prostrate annual that forms dense mats up to 4 feet across. Leaves are opposite and pinnately compound with 4 to 8 pairs of oval, hairy, 1/2-inch long leaflets. Stems branch from the base and from leaf axils and are slender and hairy. Flowers are 5-petaled, yellow, 1/2-inch wide, and borne singly in leaf axils from midsummer until frost. Fruits are roughly circular, splitting into 5 sections, each with 2 large, divergent spines. These tack-like burs contain up to 4 seeds. This weed is a problem in yards, many row crops, including vegetables, and in many non-crop areas.

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.



Be the first to email Bob with the CORRECT common name at [bscott@uaex.edu](mailto:bscott@uaex.edu) and win a prize.

## **To The Readers**

**Please offer any suggestions for Urban or Livestock Integrated Pest Management topics (insect pests, plant diseases, weed problems, wildlife-control problems) that you would like to see – OR – feel free to submit an article that you have prepared. Kelly and I will be glad to include it (subject to editing). Send feedback to [jhopkins@uaex.edu](mailto:jhopkins@uaex.edu) or [kloftin@uaex.edu](mailto:kloftin@uaex.edu).**

---

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.