

Pest Management News

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

Contributors

Dr. Becky McPeake, Professor and Wildlife Extension Specialist
Dr. Bob Scott, Professor and Extension Weed Scientist

Letter #5

September 30, 2013

Mosquitos Can Be More than Just a Nuisance

John D. Hopkins

For most people in Arkansas, mosquitoes and mosquito bites are just a nuisance. However, being bitten by mosquitoes does carry additional risks. Last year was a record year for West Nile Virus (WNV) in not only the state but also the country. In 2012, there were 64 cases and seven deaths in Arkansas, and more than 5,500 cases and 286 deaths in the country (excluding Hawaii and Alaska), according to the Centers for Disease Control and Prevention (CDC). The Arkansas Department of Health (ADH) is reporting that the current 2013 WNV case count for human infections is six with one resulting death.



Experts from the CDC believe WNV is now established as a seasonal epidemic in North America that flares up in the summer and continues into the fall. WNV was first identified in 1937 in Uganda in eastern Africa. It was first discovered in the United States in the summer of 1999 in New York. Since then, the virus has spread across the US and was first recognized in Arkansas in 2002.

Not all mosquito species can vector WNV but those that do must first become infected by feeding on a bird (host) that has the virus and then bite a human or animal to pass the disease along. Certain species of birds (especially crows and blue jays), when infected with WNV, can also get the disease and die. WNV is not spread by person to person contact and the risk of infection through medical procedures is very low as all donated blood is checked for WNV before being used.

The reality of the situation is that very few people infected with WNV through mosquito bites experience anything beyond a day or two of feeling mild flu-like symptoms (symptom onset in 3 to 14 days) and many (about 80%) show no symptoms at all. A small number of people (About 1 in 150) infected with WNV develop severe illness (West Nile encephalitis, West Nile meningitis or West Nile

meningoencephalitis). The severe symptoms can include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis. These symptoms may last several weeks, and neurological effects may be permanent. Those at greatest risk are the elderly and those with underlying health problems. There is no specific treatment for West Nile virus infection but the surest way to stop the spread of WNV and other mosquito-borne diseases like St. Louis encephalitis and Eastern Equine encephalitis is prevention.

Personal protection from mosquito bites should be more than a passing consideration. To reduce your risk from nuisance mosquito bites and possible infection with mosquito-borne illnesses, you should avoid being outside at dusk and dawn, when mosquitoes are most active. If you have to be outside, wear long-sleeved clothing and protect yourself with a good insect repellent. In addition, you should drain any standing water on your property. Things to consider:

- Dispose of tin cans, plastic containers, ceramic pots or similar water-holding containers.
- Remove all discarded tires from your property.
- Empty excess water from flowerpots.
- Drill holes in the bottoms of recycling containers that are kept outdoors.
- Make sure roof gutters drain properly and clean out clogged gutters.
- Turn over plastic wading pools and wheelbarrows when not in use.
- Change the water in birdbaths and pet bowls on a regular basis.
- Clean vegetation and debris from the edges of ponds.
- Clean and chlorinate swimming pools, outdoor saunas and hot tubs.
- Drain water from pool covers.
- Use landscaping to eliminate stagnant water that collects on your property.
- Make sure all windows and doors have screens in good repair.
- Correct or report drainage problems in ditches along public or private roadways.

With respect to mosquito repellents, use only products with active ingredients registered by the Environmental Protection Agency (EPA). The two products that have been shown to work better and provide the longest lasting protection are DEET and Picardin. Other active ingredients that will also provide a reasonable level of protection include Oil of Lemon Eucalyptus (PMD) and IR3535. As with any product, follow label directions carefully and use only in the manner described. If you believe you or your child is having an adverse reaction to a repellent, wash the treated area immediately and call your health care provider.

Chemical control measures primarily target adult mosquitoes. Outdoor foggers will keep mosquitoes away for several hours, but once the chemical dissipates, the mosquitoes return. Spraying thickets or shrubs along the perimeter of your yard helps reduce the population of mosquitoes that rest in these areas. Most insecticides that target adult mosquitoes are not selective, and may harm beneficial insects and other non-target organisms. The use of mosquito adulticides will provide only a temporary reduction in mosquito numbers. Modifying or eliminating breeding sites is the only long-term solution to severe mosquito problems.

Insecticides are also available for controlling mosquito larvae, but their application in either large bodies of water or small artificial breeding sites can be difficult and expensive, particularly for an individual homeowner. Homeowners wanting to treat small areas, such as bird baths, garden pools, and other water features in the landscape, might want to try bacterial insecticides that are available at

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.

many retail stores, garden centers and on-line garden suppliers. These “granules / briquettes / donuts” contain a bacterium known as *Bacillus thuringiensis israelensis* or “Bti.” This bacterium kills mosquito larvae, but does not harm fish, birds or other wildlife.

Canines on the Trail of Pests

Adapted from School IPM 2015 - September 2013 Newsletter

John D. Hopkins

Canines are more than just our friend. They use their excellent sense of smell to hunt, find missing people, track escaped convicts, sniff out contraband and even to detect cancer in humans. Bed bug-seeking dogs have received attention in recent years, but did you know that dogs can also be trained to locate termites, screw worms and other pests?

The U.S. Department of Agriculture's Horticultural Research Laboratory in Fort Pierce received a grant to study the feasibility of using canines to find [citrus canker](#), a serious disease of citrus trees. Although the study is still underway, Tim Gottwald, a senior scientist with the Department says that so far canines have been 97 to 99% accurate in detecting canker in the randomized, controlled study. The dogs are owned by [J&K Canine Academy](#), a nationally recognized behavioral training school based in Florida that teaches dogs to detect termites, bedbugs, bombs, some cancers and canker.

There are limitations to using canines for canker scouting. One challenge is the amount of acreage. There are more than 540,000 acres of citrus trees in Florida alone. It may not prove practical to use canines to cover such a large area. Also, canines lose their accuracy when they become overheated and begin panting, a concern in Florida's and probably Arkansas' climate.

Dogs and their human handlers work as a trained team. Oscar Rincon and Jeremy Ecker were trained at J&K Canine Academy and specialize in indoor pest detection. They continuously train their canines by hiding live bedbugs kept in vials with mesh covers to allow the scent to escape. Canines are rewarded with food if they are able to locate the hidden vials. Ecker relates that his career choice requires a unique commitment. He maintains his own colonies of bed bugs for training, allowing them to feed monthly on his forearms. Bed bugs are not known to spread disease, but they can cause an uncomfortable reaction in some individuals, fortunately this is not the case for Ecker.

[The National Entomology Scent Detection Canine Association](#) (NESDCA) was formed by pest control professionals as a certifying organization that assures the highest quality of standards for scent-detecting canines in residential dwellings, warehouses, office buildings, schools, hotels and other indoor facilities. Certification involves a pass/fail evaluation. Handlers and canines are certified together as a team, neither can be certified individually. Teams must be recertified annually.

There are different tests for each type of certification. The number of "hides" the canine must find depends on the certification type, e.g., termites, bed bugs, carpenter ants or rodents. Live pests are hidden at least thirty minutes prior to the start of the test. Two people attempt to distract the canines to simulate what a real life scenario might entail. Teams have twenty minutes to conduct their search and are allowed only one incorrect response. To learn more about the certification process visit the NESDCA [certification rules webpage](#).

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.

Livestock & Forage Pests of Fall, Winter & Early Spring

Kelly M. Loftin

Now that the temperatures have subsided and we are entering fall, many of us are not thinking too much about insect pests. Just because horn flies, horse flies, grasshoppers and armyworms are either about gone or soon to be on their way out does not mean we should forget about other pests. A couple of pest groups that come to mind are lice and bots. Lice are potential wintertime pests of several livestock species especially stressed animals. Another group of pests are the bot flies of horses. Although bot flies lay eggs when temperatures are warm, the onset of cool temperatures (actually a killing frost) indicates it is near that time of the year to initiate chemical control of the parasitic stages (larvae) of the fly. And on the pasture side, don't forget about the potential for late season fall armyworm infestations or fire ants if you live in areas that lack them and purchased hay from fire ant infested areas last year.

Fall armyworms

We have been very fortunate so far this year in that we have had very few reports of armyworms (fall or true). In fact, I've been looking for an infested pasture or hayfield for a fall armyworm insecticide trial since July. Thus far I have been unsuccessful. Although I don't anticipate major fall armyworm issues this fall, we should not let our guard down. With the return of rain in some parts of the state, the bermudagrass is greening up and is subject to potential infestation. Also, please don't forget about the winter annual grasses that have recently been planted as these are at risk as well. Although I doubt that we will see the widespread devastating infestations like we had in the fall of 2012, we should encourage our producers to keep an eye out for armyworms especially in newly planted cool winter annuals. For more information on managing armyworms, a factsheet is available at: http://www.uaex.edu/Other_Areas/publications/PDF/FSA-7083.pdf and insecticide recommendations are available at: http://www.uaex.edu/Other_Areas/publications/pdf/MP144/C_Forages.pdf. I am hopeful that you will not need to access these resources this fall. Please let me know if you become aware of fall armyworm infestations in bermudagrass or winter annuals.

Imported fire ants

It has been about a year since large quantities of baled hay from fire ant infested areas were imported into non-infested areas of Arkansas. Recently formed fire ant colonies should be visible by now, especially since we have started to receive rain. Concentrate sampling and/or observation for fire ant colonies in areas where the potentially infested hay was stored or fed. If you missed last month's eXtension webinar on "Shipping Hay Outside the Fire Ant Quarantine Area", the recording is available at <https://learn.extension.org/events/993>. (This webinar also cover information on identification of new fire ant infestations and best management practices that both the hay producer and purchaser can use to minimize the spread of imported fire ants into non-infested areas). Also, we still have copies of the "Fire Ant & Baled Hay" brochure, so please let me know if you need additional copies for your clientele.

Lice

Cattle, goat, sheep and horse owners need to at least think about lice on their livestock this winter. In many cases, the potential for severe direct economic losses in cattle caused by biting or sucking lice is fairly low. However, heavy infestations add to the stress of cold weather, shipping, poor nutrition and internal parasite load. Lice are generally most abundant on animals during the period of greatest winter stress and continue through early spring.

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.

Why are lice a winter pest? Generally, lice do not survive well in the summer because hot temperatures are lethal to the insect. However, one or two percent of animals may serve as chronically infested “reservoir” animals. A few lice on the reservoir animals survive on cooler areas of the body such as the ear tips. As temperatures cool, lice may move onto uninfested animals. Crowded conditions that often occur at winter feed troughs exasperate this spread.

Lice are small ($\frac{1}{10}$ to $\frac{1}{8}$ inch), wingless, species-specific external parasites of livestock and poultry. Two species occasionally infest equines: the horse sucking louse (*Haematopinus asini*) (Figure 1) and the horse biting louse (*Bovicola equi*) (Figure 2). In cattle, one species of biting lice, the cattle biting louse (*Bovicola bovis*) and three species of sucking lice; the shortnosed cattle louse (*Haematopinus eurytenuis*), the longnosed cattle louse (*Linognathus vitula*), cattle tail louse (*Haematopinus quadripertusus*) and the little blue cattle louse (*Solenoptes capillatus*) occur. Sucking lice pierce the skin and suck blood while the biting lice move about on the animal chewing hairs, skin and secretions. Both types of lice are problems during the winter and early spring but as mentioned earlier reproduce year-round at least on some animals. Lice are spread from animal to animal by direct contact such as shipping or feeding. Animals infested with lice will have an unkempt coat, scaly skin and possibly raw areas on the skin. Infested animals will scratch and rub to relieve the itching caused by lice. Often in heavy infestations, clumps of hair will fall off. Weight loss or reduced weight gain can occur with heavy louse infestations.

Lice can produce multiple generations per year, thus allowing numbers to become high if uncontrolled. All louse stages (egg, nymph and adult) are found on the animal. Adult female lice glue eggs (called nits) to hairs (Figure 3), eggs hatch into nymphs in about 10 to 15 days, and after three molts, nymphs become adults. It requires about 1 month for an egg to develop into an adult.

In cattle, light louse infestations are easily overlooked. Heavier infestations are easier to recognize by animals’ rubbing and loss of hair. A lice population on cattle can be estimated by examining five one inch square areas on the face, face, dewlap, neck, back and base of the tail. Lice populations on cattle are usually categorized as very slight (less than 5 per square inch), slight (5-10 per square inch), moderate (10-20 per square inch), severe (20-50 per square inch) and very severe (over 50 per square inch).

Lice infestations are identified more quickly in horses because they are routinely groomed. Horses infested with lice will have an unkempt coat, scaly skin and possibly raw areas on the skin. Infested animals will scratch and rub to relieve the itching caused by lice. Weight loss or reduced weight gain can occur with heavy louse infestations. Louse infestations are identified more quickly if horses are routinely groomed.

Good nutrition that includes a high energy diet usually reduces the negative effects of lice infestations on livestock and is the foundation of a louse control program. Sufficient nutrition will allow the animal to better deal with blood loss and irritation. Another very important component of lice prevention is to assume that all purchased or “new” animals are infested. With this said, new animals should be isolated from the rest of the herd until a full course of louse treatment is completed.

Insecticides used for louse control are divided into two major groups; systemic products (includes synthetic organophosphate insecticides and endectocides) and non-systemic products (primarily pyrethroids). For winter treatment of lice on cattle, selection of the right insecticide is crucial. Winter applications of endectocides containing doramectin, ivermectin, moxidectin; and systemic

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.

organophosphate insecticides such as coumaphos, famphur, fenthion, phosmet or trichlorfon may trigger an adverse host-parasite reaction if cattle grub larvae are in a critical stage of migration in the cattle. When lice infestations are detected during the winter months in **cattle that were not previously treated for cattle grubs**, non-systemic pyrethroids such as permethrin, cyfluthrin, zeta-cypermethrin, gamma-cyhalothrin, and lambda-cyhalothrin are recommended. Also remember that products registered for use on beef cattle may or may not be approved for use on lactating dairy cattle so consult the label before purchase. Synthetic pyrethroids such as permethrin and organophosphate insecticides such as coumaphos may be used to control louse infestations in horses. Consult the animal section of **MP144, Insecticide Recommendations for Arkansas** (http://www.uaex.edu/Other_Areas/publications/PDF/MP144/MP-144.asp), for a listing of insecticides available for louse control.

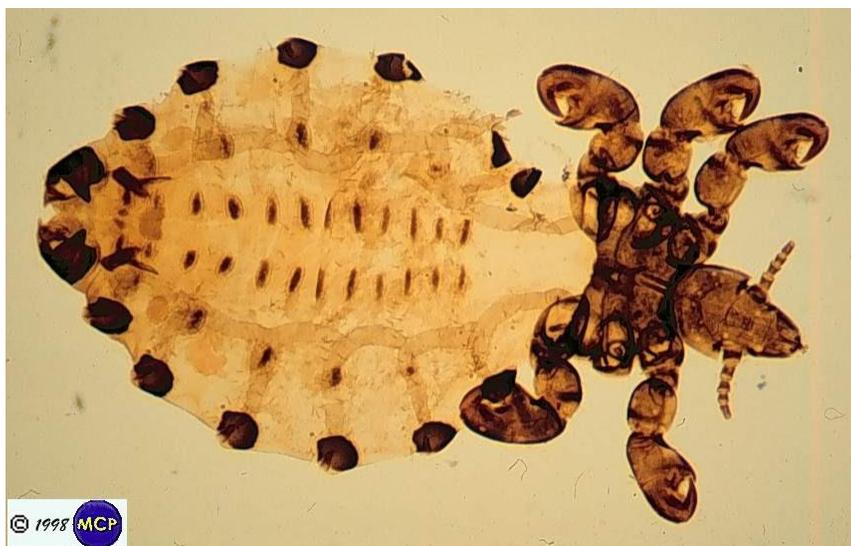


Figure 1. Sucking louse, *Haematopinus* sp. (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)

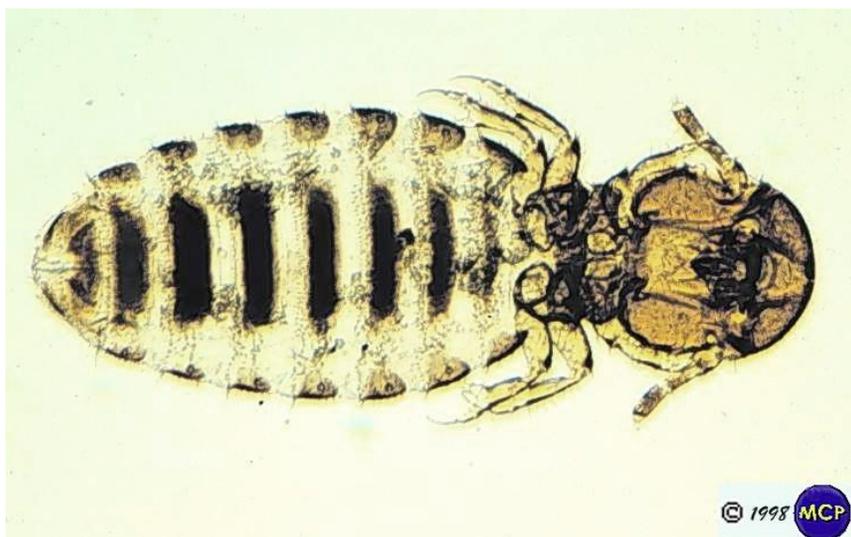


Figure 2. Horse Biting Louse, *Bovicola equi* (Denny). (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)

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 3. Louse eggs (nits) attached to horse hairs. (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)

Horse bot flies

I have noticed an abundance of bot fly eggs on my horses and mules over the last few weeks. This was a reminder that in about a month or so I will need to treat my animals with a boticide. Even though we employ cultural control of bot fly eggs during routine grooming, we still need to administer a boticide after a “killing frost” Although the adults are free living and do not directly harm horses, their immature stages (larvae) can cause damage to the stomach lining as well as colic.

Horse Bot Flies (Family Gasterophilidae). Horse bot flies are in the family Gasterophilidae. The larval forms are important internal parasites of equines. The three species considered important in the U.S. are: *Gasterophilus intestinalis* (DeGeer), the horse bot fly; *Gasterophilus nasalis* (L.), the throat bot; and *Gasterophilus haemorrhoidalis* (L.), the nose bot. Adults resemble bees in that they are about the same size and hairy-bodied (Figure 1). Adult bot flies are short-lived, possess non-functional mouthparts thus do not feed. Adult activity begins in warm weather and ceases at the first frost.

Adult female bot flies attach eggs to the hairs of the host's body similar to lice (Figure 2). The site of egg attachment is specific to the bot fly species. Horse bot flies attach eggs on the forelegs between the knee and hock; throat bot flies attach eggs under the jaw; and the nose bot flies attach eggs to the upper lip. Horse and throat bot fly eggs are stalkless; and nose bot fly eggs are stalked. For the horse bot fly, egg hatching is stimulated by moisture and friction from the animal's licking. Larvae gain access to the host's mouth by this licking, and burrow into the tongue or gums. They remain there for about a month then pass to the stomach attaching to its mucous membrane where they remain for about 9 months (Figure 3). In the spring larvae (Figure 4) detach from the stomach and are passed with feces and pupate (Figure 5) outside their host. Adults emerge from pupae in about a month to 6 weeks. Horse bot flies may cause significant damage to the stomach lining and possibly stomach rupture or colic if the passageway between the stomach and small intestine becomes blocked. The life cycle of the throat and nose bot flies are similar to the horse bot fly, except mature nose bot fly larvae attach to the rectum near the anus; and the mature throat bot fly larvae attach in the duodenum (first section of small intestine) near the pylorus.

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.

Chemical control of bot flies is aimed at the parasitic stage within the horse. Several formulations of ivermectin or moxidectin are available for bot fly control in equines. These products are relatively easy to use, effective and should be administered after fly activity ceases (generally after the second killing frost). The “Insecticide Recommendations for Arkansas - 2010”(MP 144 http://www.uaex.edu/Other_Areas/publications/PDF/MP144/MP-144.asp) provides a listing of products available for controlling bots in equines. “Arthropods Pests of Equines” (MP 484 http://www.uaex.edu/Other_Areas/publications/PDF/MP484.pdf) provides biology and control information on major arthropod pests of equines including horse bots. “Livestock Health Series: Internal Parasites of the Horse” (FSA 3096 http://www.uaex.edu/Other_Areas/publications/PDF/FSA-3096.pdf) is available for more information on other internal parasites of equines including bots.

Non-chemical bot fly control is aimed at the eggs. Equine owners can frequently sponge the horse with warm water to stimulate hatching of bot fly eggs. New hatched bot fly larvae quickly die especially if done on a cool day. For the horse bot fly, concentrate efforts on the animal’s legs between the hock and knee. Also, applying insecticidal washes to egg laying sites can reduce the number of larvae ingested by the animal. These remedies should reduce the number of bot fly larvae ingested by the animal, but will not control any larvae that were unaffected and ingested. Because of the seriousness of bot fly infestations, treatment with a boticide to control the parasitic stages is recommended.

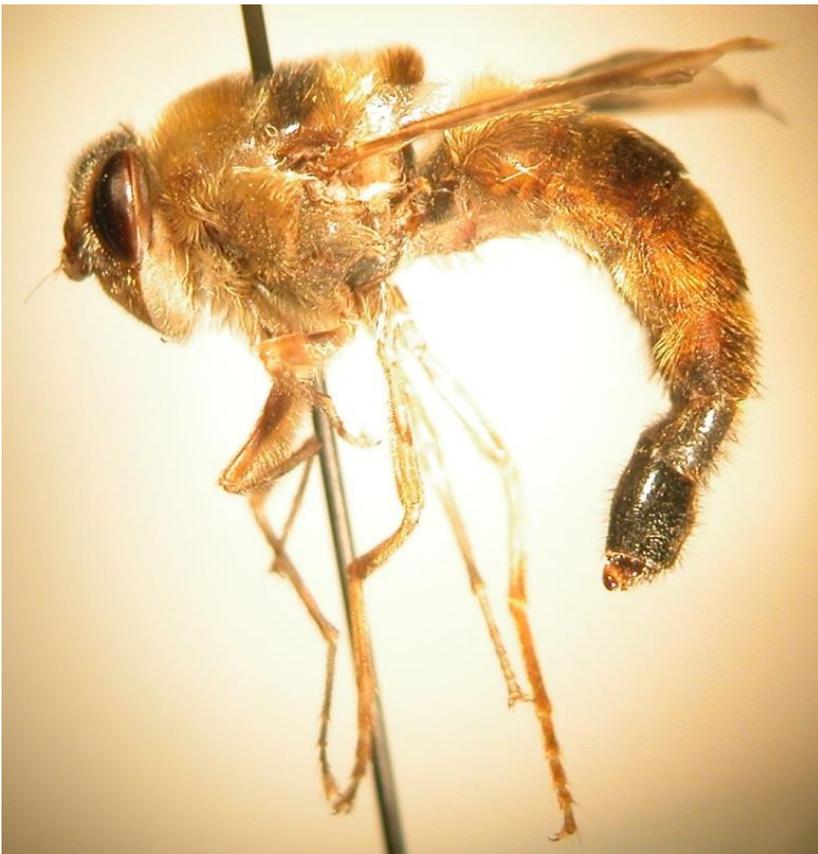


Figure 1. Adult horse bot fly, *Gasterophilus intestinalis* (DeGeer). (Kelly M. Loftin)

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 2. Eggs of the bot fly, *Gasterophilus intestinalis* (DeGeer), deposited on the hairs of a horse's foreleg. (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)



Figure 3. Bot fly larvae, *Gasterophilus nasalis* (L.), attached to the pyloric region of horse stomachs. (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)



Figure 4. Bot fly larva, *Gasterophilus intestinalis* (DeGeer). (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)



Figure 5. Pupa of bot fly, *Gasterophilus nasalis* (L.) (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)

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.

Frog and Toad Problems

Becky McPeake

Many consider frogs and toads to be an important part of our natural world: non-threatening, kid-friendly, consumers of insect pests, and symbolic of a healthy environment. But on rare occasions, frogs and toads can cause problems. Those asking for help often report extremely loud vocalizations or encroachment during particular times of the year. During their breeding season, homeowners complain their loud noises are bothersome and prevent getting a good night's rest. Invasions of numerous treefrogs can leave small fecal spots on siding, with some uninvited guests entering homes and other buildings. Numerous decaying carcasses of frogs or toads from approaching tires or foot traffic are a problem particularly for businesses. Such problems can occur in the spring or summer, extending into the fall and even occasionally in winter when warm weather brings frogs and toads out of hibernation.

Herpetologists (biologists who study reptiles and amphibians) indicate there are no definitive characteristics to distinguish a frog from a toad, but in general:

- Toads have warty skin and relatively short legs for hopping, whereas frogs have rather smooth skin and relatively longer legs for jumping.
- Toads generally do not have teeth, whereas frogs have them on their upper and lower jaws.
- Toads lay eggs in long parallel strings while frogs lay eggs singly or in clumps.

Recognizing whether you are dealing with a frog or toad problem can help determine which remedy is best.

For some frog and toad problems, the solution is as simple as changing a light bulb – literally. Lights which attract insects, such as vapor lights left on at night, will also attract frogs and toads. Reducing or turning off as much light as possible, using motion sensor lighting, raising lights higher (so fewer insects are at ground level if toads are the issue), or changing the light colors to those less attractive to insects can help reduce problem.

Spraying a salt solution on pavement is a remedy that has been circulated on the internet. Kory Roberts, who manages the Herps of Arkansas website (www.herpssofaransas.com), believes that theoretically, a salt concentration could repel - or possibly kill - frogs and toads. The skin of amphibians is semi-permeable and leaves them susceptible to salt and other chemicals, such as chlorine when used to treat swimming pools. A notable problem with using a salt solution is that frogs



A gray treefrog is well camouflaged against tree bark. Photo by Becky McPeake, University of Arkansas.

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.

tend to come out most when it rains, and any significant rain would nullify a salt treatment. High salt concentrations can also kill plants, including landscape plants.

An alternative for keeping toads from encroaching onto parking lots or into buildings is constructing a barrier either with landscaping blocks, 1/8 inch mesh hardware cloth, boards, tarpaper, plastic, or aluminum flashing that is 12 inches high. The barrier needs to be buried slightly so toads can't dig under it. These low barriers are like those seen with highway construction presumably to slow or prevent soil erosion.

Another option is collecting toads or frogs in a bucket and transporting them a short distance to a pond, lake or wetland. Frogs can be located at night by the reflection of their eyes in a light beam. After several nights of collecting frogs or toads, their population – and the problem - will be reduced. When collecting amphibians, wearing surgical gloves is recommended.

Modifying frog habitat could help with reducing problems with loud vocalizations. This includes keeping shorelines free of emergent vegetation to minimize cover for adult frogs, which allows predators to locate them.

Human predation of bullfrogs is also an option. Bullfrogs can be taken in Arkansas with a hunting license from noon, April 15 through midnight, December 31. They can be collected by hand, hand net, hook-and-line, gig, spear, or bow and arrow. For further information, see current rules and regulations at the Arkansas Game and Fish Commission's website (www.agfc.com) under technique-specific fishing regulations.

Removing habitat such as draining ponds could be an option, except once habitat is removed, encroachment by amphibians and reptiles seeking new habitat may be an issue for a while. An alternative is providing toad or frog habitat away from the offending areas to lure them in that direction.

Name That Weed

Bob Scott

This week's weed is not a weed at all, well yet anyways. Many people in Arkansas may have mistaken this plant for pigweed growing in fields in NE Arkansas earlier this year. But in fact it is a new Crop! Numerous wild relatives of this plant occur in Africa and a smaller number in India. It is widely naturalized in tropical regions around the world and is cultivated for its edible seeds, which grow in pods. It is in fact one of the oldest oilseed crops known, domesticated well over 3000 years ago. It was a major summer crop in the Middle East for thousands of years, as attested to by the discovery of many ancient presses for its oil in the region. The plant is drought-tolerant and is able to grow where other crops fail. It has one of the highest oil contents of any seed. With a rich nutty flavor, it is a common ingredient in cuisines across the world. Like other nuts and foods, it can trigger allergic reactions in some people. It is an annual plant growing 50 to 100 cm (1.6 to 3.3 ft.) tall, with opposite leaves 4 to 14 cm (1.6 to 5.5 in) long with an entire margin; they are broad lanceolate, to 5 cm (2 in) broad, at the base of the plant, narrowing to just 1 cm (0.4 in) broad on the flowering stem.

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 flowers are yellow, tubular, 3 to 5 cm (1.2 to 2.0 in) long, with a four-lobed mouth. The flowers may vary in color with some being white, blue or purple.

Fruit is a capsule, normally pubescent, rectangular in section and typically grooved with a short triangular beak. The length of the fruit capsule varies from 2 to 8 cm; its width varies between 0.5 to 2 cm, and the number of loculi from 4 to 12. The fruit naturally splits open (dehisces) to release the seeds by splitting along the septa from top to bottom or by means of two apical pores, depending on the varietal cultivar. The degree of dehiscence is of importance in breeding for mechanized harvesting as is the insertion height of the first capsule.

Seeds are small. The size, form and colors vary with the thousands of varieties now known. Typically, the seeds are about 3 to 4 millimeters long by 2 millimeters wide and 1 millimeter thick. The seeds are ovate, slightly flattened and somewhat thinner at the eye of the seed (hilum) than at the opposite end. The weight of a seed is between 20 and 40 milligrams. The seed coat (testa) may be smooth or ribbed.

Seeds come in many colors depending on the cultivar harvested. The most traded variety of sesame is off-white colored. Other common colors are buff, tan, gold, brown, reddish, gray and black.

Seed is sometimes sold with its seed coat removed (decorticated). This is the variety often present on top of buns in developed economies.

The world harvested about 3.84 million metric tonnes of seed in 2010. The largest producer in 2010 was Burma. The world's largest exporter of sesame seeds was India, and Japan the largest importer.

Finally, if you have eaten a burger at McDonalds or Burger King then you have likely eaten the seeds of this plant, "Two all beef patties, special sauce, lettuce, cheese, pickles onions on a _____ seed bun!" Is how I like mine. Be the first to correctly identify this new crop for Arkansas and win a prize.

bscott@uaex.edu

Sources: Wikipedia.com and dreamstime.com.



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 or 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.