

## ***Pest Management News***

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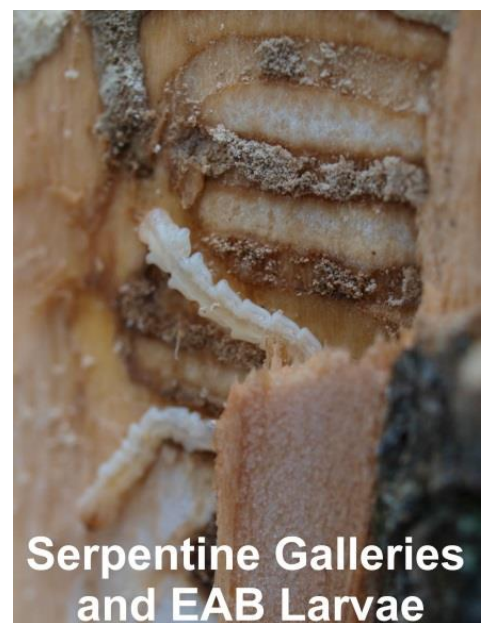
Letter #4

August 31, 2014

### ***Emerald Ash Borer: A New Invasive Pest in Arkansas***

John D. Hopkins and Tamara Walkingstick

As of August 2014, the emerald ash borer (EAB), *Agrilus planipennis*, an invasive pest of ash trees (*Fraxinus* spp.) has been confirmed from six Arkansas counties (Hot Spring, Clark, Dallas, Nevada, Ouachita, and Columbia) with more expected. USDA-APHIS-PPQ and the Arkansas State Plant Board have been monitoring for the presence of this pest in Arkansas for the past several years with purple prism traps baited with lures that are attractive to the EAB. This summer, the first positive trap catches were made.



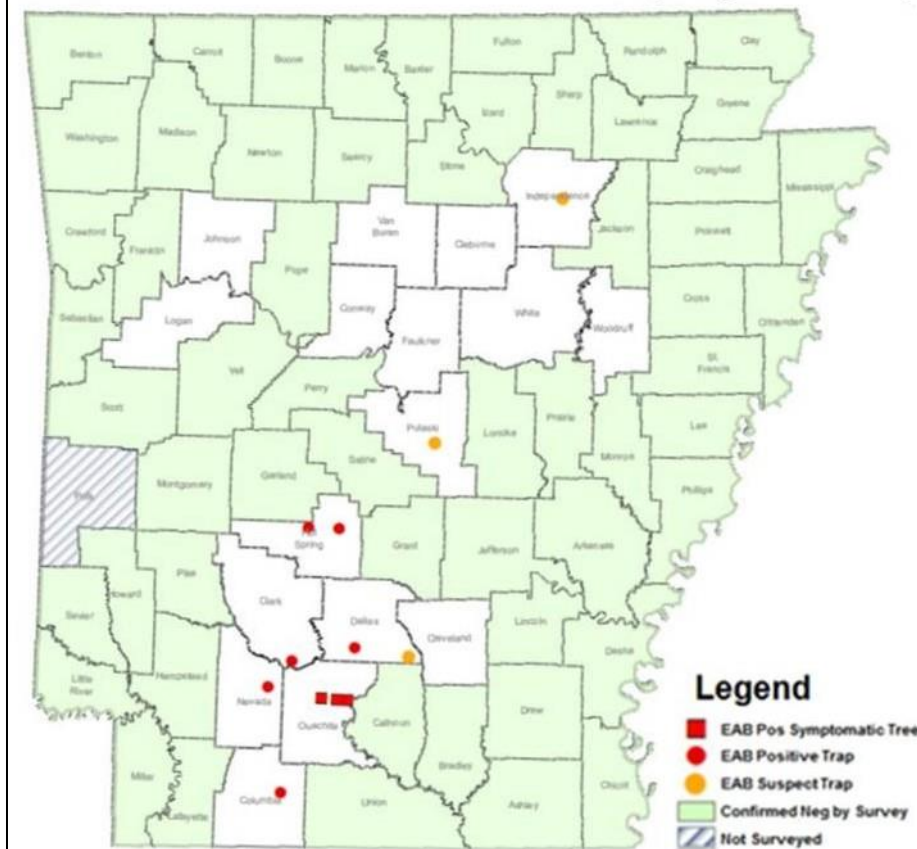
**Ash with Dying Crown  
Due to EAB Infestation**



**Purple Prism Trap**



**Emerald Ash Borer in Arkansas (August 2014)**

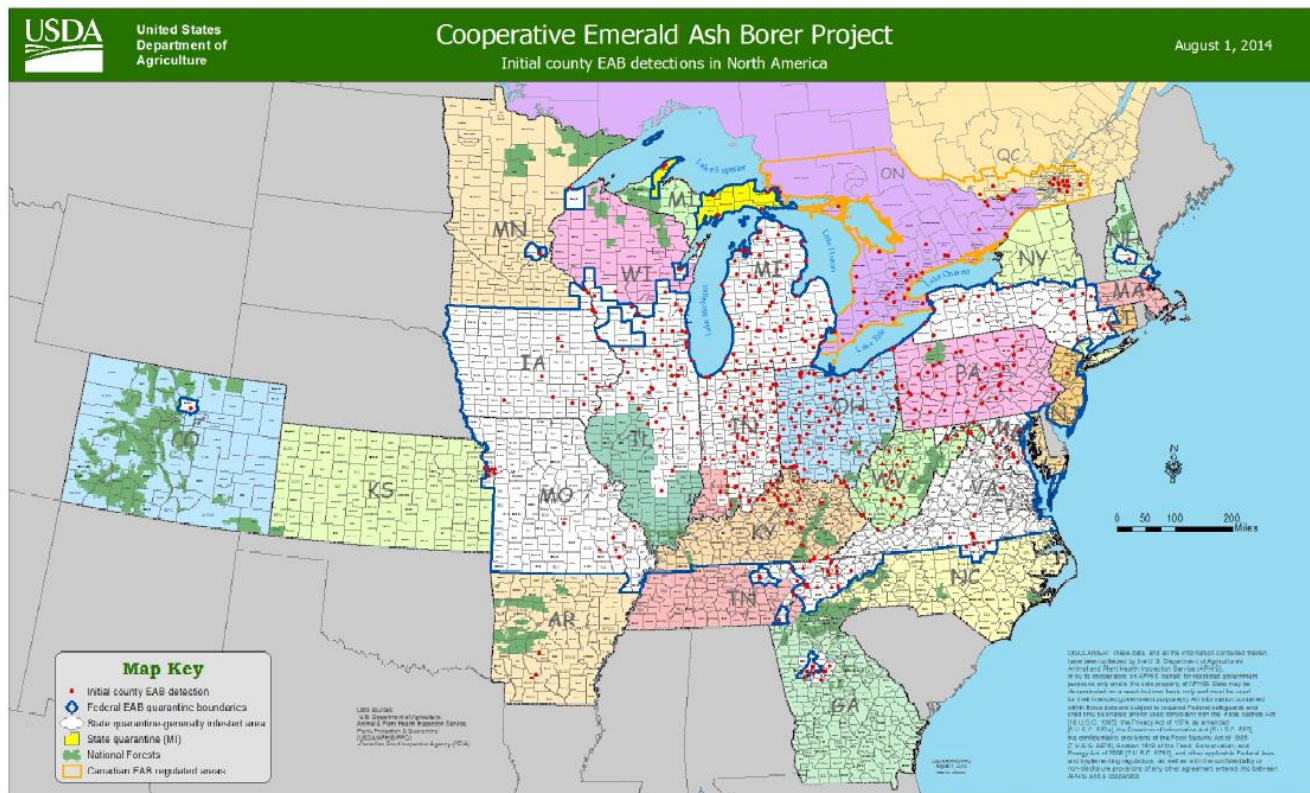


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This pest was first identified in the U.S. in 2002 from affected ash trees in southeast Michigan (Detroit area). The original source of the invading EAB, while still uncertain, was likely Asia where it is a native species. It is most likely that the pest was imported in wood packing material. EAB spread across the U.S. (as of August 2014) can be seen in the map below.



The FactSheet FSA7066 “Emerald Ash Borer: A Potential Pest of Ash Trees in Arkansas” is in the process of being updated as the EAB is no longer a potential pest but, unfortunately, now a current one. Information on EAB identification, biology, and ash tree symptoms can be obtained in FSA7066 by clicking on the following link: <http://www.uaex.edu/publications/PDF/FSA-7066.pdf>.

Additional information about the EAB in Arkansas can be found at:

<http://www.arinvasives.org/potential-invaders-of-arkansas/emerald-ash-borer/> and at: <http://www.uaex.edu/environment-nature/default.aspx>.

Why are we concerned about this pest? **!!! EAB KILLS ASH TREES !!!** Within 2 years of observing symptoms, most of the crown of an infested tree will be dead. Complete tree death typically occurs within 5 years, but may take as few as 2-3 years.

In Arkansas, ash makes up only 2.5% of the total forest composition (5-7% of total composition in Delta forests) but ash trees also provide shade and aesthetic beauty in public and private landscapes where the loss of these trees will cost homeowners, cities, and municipalities thousands of dollars. Ash is used in the sawtimber and pulpwood markets. Landowners might not be able to sell their resources outside of any quarantine area. Landowners who have planted ash as part of a conservation program may not see any returns from their investment and in fact, may incur the costs of removing ash from their property. And most importantly, the possibility exists that all ash species

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may disappear from our forest ecosystems. We lost our native chestnut trees to an exotic disease back in the 1960's. We could very well lose our native ashes from our forests for the foreseeable future.

## **Ash Composition in Arkansas Forests**

| Trees DBH > 1" |                |             |            |
|----------------|----------------|-------------|------------|
| Region         | Total          | Ash         | Percentage |
| Total          | 11,714,816,984 | 294,069,739 | 2.5%       |
| Delta          | 1,040,065,911  | 66,759,342  | 6.4%       |
| Southwest      | 4,867,360,703  | 106,695,399 | 2.2%       |
| Ouachita       | 2,054,502,327  | 38,830,547  | 1.9%       |
| Ozarks         | 3,752,888,043  | 81,784,452  | 2.2%       |

| Trees DBH > 5" |               |            |            |
|----------------|---------------|------------|------------|
| Region         | Total         | Ash        | Percentage |
| Total          | 2,651,466,253 | 50,753,975 | 1.9%       |
| Delta          | 280,108,283   | 16,644,799 | 5.9%       |
| Southwest      | 969,177,731   | 12,941,442 | 1.3%       |
| Ouachita       | 493,095,895   | 4,636,914  | 0.9%       |
| Ozarks         | 909,084,345   | 16,530,821 | 1.8%       |

**Source - 2013 AR Forestry Commission Survey**

There are no effective means protect or save trees from the EAB in a forest environment. The best option for most ash trees is to quickly detect the presence of EAB in new areas and destroy affected tree materials. Cut down dead and dying ash trees and chip, burn, or bury the wood on the site, in accordance with all local regulations, to reduce the chance of other trees being attacked. The Arkansas State Plant Board will soon issue a quarantine to prevent the human-facilitated movement of EAB to new areas.

Insecticide options are available for those wishing to protect high-value ornamental trees, an option which is not recommended until the beetle is known to be present within 15 miles. If a tree is already infested and if over half the crown is alive, systemic insecticides applied as soil drenches/injections, trunk injections, or trunk sprays, may be used to help trees recover. Bark and canopy sprays with pyrethroids or carbaryl may also be beneficial in controlling adults during their flight season from early April to late September. Recovery is slow and improvement in tree health might not be noticeable for one to two years. Re-treatment must take place every one to two years.

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The USDA is investigating various native and imported exotic biological control measures (parasitic wasps) but success in this area would likely provide results only in the long term.

### How can you help stop the Emerald Ash Borer?

- Never Move Firewood - <http://www.dontmovefirewood.org/>.
- Burn It Where You Buy It
- Report Beetle Sightings or Signs of Infestation to the Arkansas State Plant Board (501-225-1598), your local Cooperative Extension Office, or your local forester.

Additional information about the Emerald Ash Borer can be obtained from the National EAB Information Website: <http://www.emeraldashborer.info/#sthash.5Qe2Pwpv.dpbs>.

## **Arilon Insecticide has New Expanded Label**

John D. Hopkins

[Arilon insecticide](#) from Syngenta Professional Pest Management has received approval from the [U.S. Environmental Protection Agency \(EPA\)](#) for uses on more than 20 pests in residential and commercial settings. The label now includes Beetles, Boxelder bugs, Carpenter bees (Arilon is not a quick knockdown agent), Centipedes, Earwigs, Fleas, Flies (for stable flies or permethrin-resistant house flies, use higher concentration - 0.1%), Grasshoppers, Kudzu bugs, Millipedes, Pantry pests (including granary weevil beetles and saw-toothed grain beetles), Silverfish, Springtails, Stink bugs (including brown marmorated stink bugs), and Wasps (Arilon is not a quick knockdown agent).

Other previously labeled pests include Ants (excluding Fire and Harvester Ants), Cockroaches, Crickets, Pillbugs, Sowbugs, and Termites (This product is not to be used as sole protection against termites, as it is not designed to offer structural protection and will not prevent future infestations. Refer to label section on termites for further information.)

The expanded label gives pest management professionals (PMPs) more flexibility for controlling a variety of pests with a non-pyrethroid, non-neonicotinoid chemistry. Currently, Arilon is the only sprayable product in the oxadiazine class of chemistry. The active ingredient in Arilon, indoxacarb, has a mode of action that combines non-repellency and a slight delay in insect mortality, with control occurring within 24 to 48 hours.

In addition to the newly added pests, the expanded Arilon label allows the product to be applied indoors as a crack-and-crevice application and in food-handling establishments, as well as outdoors as a perimeter application in up to a 10-ft. band.



**Arilon®**  
**Insecticide**

For use in single and multi-family residential buildings, schools, institutional, commercial and industrial facilities (including warehouses, apartments, supermarkets, restaurants, motels, hotels, hospitals, daycares, and food handling/storage/processing establishments) and transportation equipment such as aircraft, trains, ships, boats and buses.

**Active Ingredient:**  
Indoxacarb\*  
(S)-methyl 7-chloro-2,5-dihydro-2-[[[(methoxy-carbonyl)[4(trifluoromethoxy)phenyl]amino]-carbonyl]indeno[1,2-e][1,3,4]oxadiazine-4a-(3H)-carboxylate . . . . . 20.0%

|                          |        |
|--------------------------|--------|
| <b>Other Ingredients</b> | 80.0%  |
| <b>Total:</b>            | 100.0% |

\*Indoxacarb belongs to the oxadiazine chemical class.

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION/ PRECAUCIÓN**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

EPA Reg. No. 100-1501  
EPA Est. No. 67545-AZ-1  
Product of USA

**syngenta®**

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# **Horse and Deer Flies**

Kelly M. Loftin

I've been receiving calls from cattle producers and horse owners wanting know what to do about the horse flies. Within the last week, I've been treating our horses on a near daily basis. Horses become restless and unmanageable when attempting to ward off horse fly attack, making for an unpleasant experience for both horse and rider. Aside from the painful bite they inflict on us or our livestock, they can transmit several pathogens that cause disease. Examples of important livestock potentially transmitted by horse flies include anaplasmosis (a bacterial disease in cattle) and equine infectious anemia (EIA) (a viral disease in horses).

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 fly 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.



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



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

Most horse fly eggs (Figures 3) are laid in layered masses on vegetation overhanging moist soil or aquatic habitats such as marches or pound margins. Eggs hatch and larvae develop in moist soil or aquatic and semi-aquatic habitats. Developing larvae feed on annelids, mollusks or insect larvae. Some are even cannibalistic. Depending on the species, the larval period lasts from one 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.

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**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 six hours would take about 20 teaspoons (~ 100 ml.) of 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 horses 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).**

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**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).

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 to veterinarians for use in cattle. Producers interested in the anaplasmosis vaccine should consult their veterinarian. Additional information on this vaccine is available at: <http://www.anaplasmosisvaccine.com/aboutus.html> . Currently, no vaccine is available for equine infectious anemia (EIA) 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. Secondly, 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 occupies a wide range of larval habitats that limit larval control. Horses and other livestock can be protected with pyrethroid

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insecticides (such as permethrin). Pyrethroid insecticides are often 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 formulations also contain a synergist (piperonyl butoxide) and an oil based carrier which provide 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. Bush hogging around swampy areas or ponds may provide very 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 well beyond your control may 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.

## **Domestic Cats and Wildlife**

Becky McPeake

Domestic cats (*Felis catus*) and their effect on wildlife has received increasing attention. Studies about feral and free-ranging domestic cats suggest these non-native predators significantly impact populations of small mammals, birds, reptiles and amphibians. In 2012, researchers from the University of Georgia and the National Geographic Society's Crittercam program attached video cameras to 60 outdoor house cats near Athens, Georgia. They found nearly one-third of these cats killed an average of 2.1 animals every week they were outside, and brought less than one of four of their kills home. About 13 percent of the kills were birds. With an estimated 150 million cats in the United States, cats are likely killing more than 4 billion animals per year, including 500 million birds. Another study by the Smithsonian Conservation Biology Institute and the Fish and Wildlife Service estimated domestic cats kill a median of 2.4 billion birds and 12.3 billion mammals a year. Most were shrews, chipmunks and voles, with comparably fewer house mice and Norway rats being taken. Despite numerical differences, both studies imply the number of wildlife taken by cats in the U.S. is large.



**Domestic cats are adept hunters and their effect on wildlife has received increasing attention. Photo courtesy Deena Chadi, University of New Haven, Bugwood.org.**

To reduce predation on native wildlife species, cat owners can keep their pets indoors at all times, or limit them to outdoor enclosures, or leashes. Feeding cats does not deter them from killing wildlife;

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often they do not eat what they kill. Keeping them indoors also reduces their risk of being killed by vehicles, being exposed to diseases from other cats, and other life-threatening behaviors.

If cats must be outdoors, let them roam during daylight hours. A couple studies report a belled collar can reduce predation. A radio telemetry study indicated home ranges of owned cats were smaller than unowned cats. Unowned cats were more active at night and shifted their use of habitats seasonally, presumably in pursuit of prey. Having your cat spayed or neutered is also recommended to help control cat populations.

Arranging bird feeders to reveal a sneaking cat can help reduce their predation success. Place feeders in open areas so that an approaching cat can be easily detected. Adding a see-through barrier (e.g., chicken wire fence) ten or fifteen feet from a feeder gives birds extra time to take flight as the cat leaps the barrier.

Agricultural producers who have free-ranging cats for rodent control should keep their farm-cat numbers at low, manageable levels. Instead of farm cats, consider using alternate, safe rodent control methods to avoid wildlife losses from cats.

Deterring predation by feral cats which have no owners is another matter. The Wildlife Society (a professional association of wildlife biologists) recommends supporting local and state ordinances which prohibit feeding and maintaining feral cats, and prohibit releasing cats into the wild.

Some cat supporters encourage maintaining free-ranging feral cat colonies by trapping, altering (neuter or spay), and returning feral cats to the wild. They desire feral cats ultimately to be recognized as “protected wildlife.” Rarely, if ever, has The Wildlife Society and People for the Ethical Treatment of Animals (PETA) been in agreement - except when it comes to feral cat colonies. These cats will continue preying upon wildlife even if their population size is curtailed. PETA considers maintaining such feral cat colonies as inhumane unless the cats are “isolated from roads, people, and animals who [sic] could harm them, are regularly attended by people who not only feed them but provide them with veterinary care, and are kept in areas where they do not have access to wildlife and the weather is temperate.” PETA notes that once these cats are trapped and sterilized, often they cannot be recaptured for treatment when sick or injured.

In summary, responsible cat owners are encouraged to continue caring for animals under their control, and take steps to reduce their predation on wildlife. Feral cat removal is recommended through adoption into indoors-only homes and humane euthanasia of unadoptable cats.

An upcoming article in the Pest Management Newsletter will feature domestic dogs and wildlife.

## **Name That Weed**

Bob Scott

This month's weed is mainly found in pastures and disturbed areas in and around most of Arkansas. It is a native to North America and has no appreciable values although it is not toxic as sometimes reported, cows just don't like it. It is an erect, robust annual or can be a short lived perennial. It has extremely small seed (1mm) with a larger aerial whorl to allow for wind movement. It is a member of the sunflower family. Stems can often have a woody base as they get older. The leaves are fine and

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pinnately dissected (look that one up) and the plant does have a characteristic odor that makes at least one weed scientist sneeze.

Be the first to email me with the correct common name, it goes by at least 4, and win a prize, the value of which does not exceed any state taxable income laws. [bscott@uaex.edu](mailto:bscott@uaex.edu)



## **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)

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