Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel

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March 15, 2013 No. 1

Introduction

It is time to kick off another season of the Kansas Insect Newsletter. It is produced as needed throughout the growing season, usually on a weekly basis. It is currently available on our web site: www.entomology.ksu.edu/extension.

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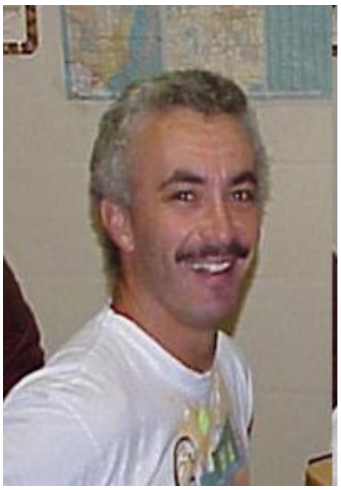

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Current Indoor Activities – Part 1: Indian Meal Moth

While cool winter weather has more-or-less suspended outdoor insect activities, species which have adapted to living and reproducing indoors have been warm-and-toasty thanks to the maintenance of heat levels for human warmth and comfort. Stored product insects are a category of pests commonly living/encountered indoors. Ordinarily, when initial populations of stored product insects are low, their populations are contained within a general area (possibly a container/box/package). As their unseen populations multiply, they eventually may "spill out" due to overcrowding and/or (if they have depleted their food supply) the need to search for new food sources. Thus their presence is revealed.

The Indian meal moth (IMM) is global in distribution. In Kansas, the IMM probably is the most common "Pantry Pest" encountered in residential homes. With their wings expanded, moths measure ¾-inch across. Newly emerged, moths are beautifully colored and patterned. The scales of the outer ½ to $^{2}/_{3}$ of the forewing provide a reddish-brown to coppery sheen. Interspersed are bands/clusters of blue scales. The front portions of the forewings are covered with whitish to cream-colored scales, and the epilates/"shoulders" again with darker scales. Because most of these scales are lost as moths fly, mate and

deposit eggs, Indian meal moths are commonly described as small nondescript plain tannish colored moths.

As with all butterflies and moths, the adult forms in of themselves cause no damage. Rather, it is their larval feeding stages which are responsible for damage. Mature larvae are up to ½- inch long. They typically are white to cream-colored, but may have a pinkish or greenish tinge.

IMM larvae are general feeders on a wide range of materials including grain products, dried fruits and seeds. Larvae will infest/feed on crackers, nuts, powdered milk, chocolate, candies, pastas, corn meal, spices, dried pet food, flour, breakfast cereals, unpopped popcorn, granola/health bars, bird seed, etc. Also, dried flower arrangements and "wheat-weaving" items serve as food sources for IMM larvae.

In addition to their feeding damage, IMM larvae produce trails of silken webs as they move about. This, in addition to accumulations of frass pellets, is unnerving when opening packaged goods which are contaminated beyond use.

The two images to the right are extreme examples of webbing over wheat in on-farm grain storage bins.

Comes the question: "How did Indian meal moths get into my home"? Because IMM naturally occur outdoors, it is conceivable that moths and larvae could move into a home through any available crack, crevice, opening. However, the acknowledged major route-of-entry is via contaminated grocery products or related goods brought into the home ---- the initial source of contamination having been initiated anywhere along the product production line and ending up on the shelves in local retail outlets.

Usually, most products are consumed in fairly quick fashion. But for contaminated products that "sit unused/undisturbed" for longer periods of time, IMM have the opportunity to develop and reproduce. It is in these instances that (due to increased populations) moths are noticed in the home, usually near the source of their production, but at other times seemingly in areas where no food sources are present. Or, as mature larvae are wont-to-do, they reveal themselves upon leaving their feeding source as they seek a secluded site (crack/crevice) in which they will construct their cocoons within which they pupate.

Upon noticing the presence of IMM, people must locate the source of the infestation. Most times, the search begins in the kitchen area. This can be a tedious and time-consuming process because each and every food product package in pantries, cabinets and drawers must be inspected. Consider removing drawers and then using a flashlight to inspect cabinet floors for possible spillage that could be the source of an IMM infestation. A vacuum would aid in cleaning up spillage. Use a soapy water solution to clean/scour contaminated surfaces. Dispose of all infested packages/commodities. A residual household insecticide registered for use against IMM/Pantry pests can be applied for the purpose of killing newly emerging moths from cocoons/pupae which were not detected/eliminated in the original cleaning operation.

If the IMM source is not found in the kitchen area, the rest of a home should be inspected. A good starting point might be other rooms and closets in the home where possibly food has been overlooked/forgotten. As earlier mentioned, dried flower arrangements or wheat craft items could be a source. Perhaps Thanksgiving decorations (especially colored-corn) could be a possible source. Check in basement or garage areas where birdseed, squirrel food (notably cobs of field corn or bulk corn kernels), grass seed and/or garden seed could be the source of Indian meal moths. LEAVE NO STONE UNTURNED!

While most commodities likely are pest free, there are no sure ways of knowing and guaranteeing that they are "clean". If truly concerned about the introduction of IMM and other species into a home, immediately upon arrival, one might consider storing products separately in tightly sealed containers. Some people will store products in a freezer for a period of time (no definite time-guideline requirements) to kill various life stages of pests that might be present. Be especially alert when shopping/purchasing bulk items such as "feed" for wildlife and dried pet food. Note any moth activity in or near bins. Stir up seed and pet food to see if you can flush out moths or larvae, or other stored product pests such as small beetles. Inspect packaging for the presence of small round holes or webbing as bags/packages are separated. Note any holes in "doggie bones". If any of these signs are present, consider making purchases elsewhere.

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Current Indoor Activities – Part 2: Beetles in Firewood

Several species of longhorned beetles typically emerge in early Spring. While currently they may be on the verge of emerging outdoors, it is still cool enough to keep them inactive. Yet already 2 phone calls have been received with regard to these beetles ---- in each instance, they were found in homes. And in each instance, firewood has been identified as their source.

Three species of longhorn beetles are commonly associated with firewood:

Painted Hickory Borer

Redheaded Ash Borer

Banded Ash Borer

While these three beetle species may deposit eggs in freshly cut unseasoned logs destined for lumber use, they more often are attracted to weakened, dying and dead trees which are prime candidates for selection as "firewood. It is important to note that despite being named after a specific tree host, each of these beetle borers have a wide host range including black locust, honey locust, oak, hackberry, walnut, hedge and mulberry …… all common "firewood" tree species.

Once eggs have been deposited, the borer larvae continue their development whether the wood is on-the-stump or cut and stacked in a wood pile. After larvae have completed their development and pupation, the beetles emerge. If beetles emerge and are entrapped in an indoor confined area, their presence becomes known as they crawl and fly about.

Will treating firewood with an insecticide kill the developing larvae and thus prevent its development to the adult stage? **NO!** Insecticides applied to the surface of firewood do not penetrate into the wood to kill larvae embedded deep into the wood.

Do the emerging beetles constitute a threat to indoor/structural wood? **NO**! Borer beetles deposit eggs outdoors in their previously-described preferred ovipositional sites.

What to do? Eliminate/kill them in whatever manner you choose. Or, simply capture the beetles when they appear and release them back to the outdoors.

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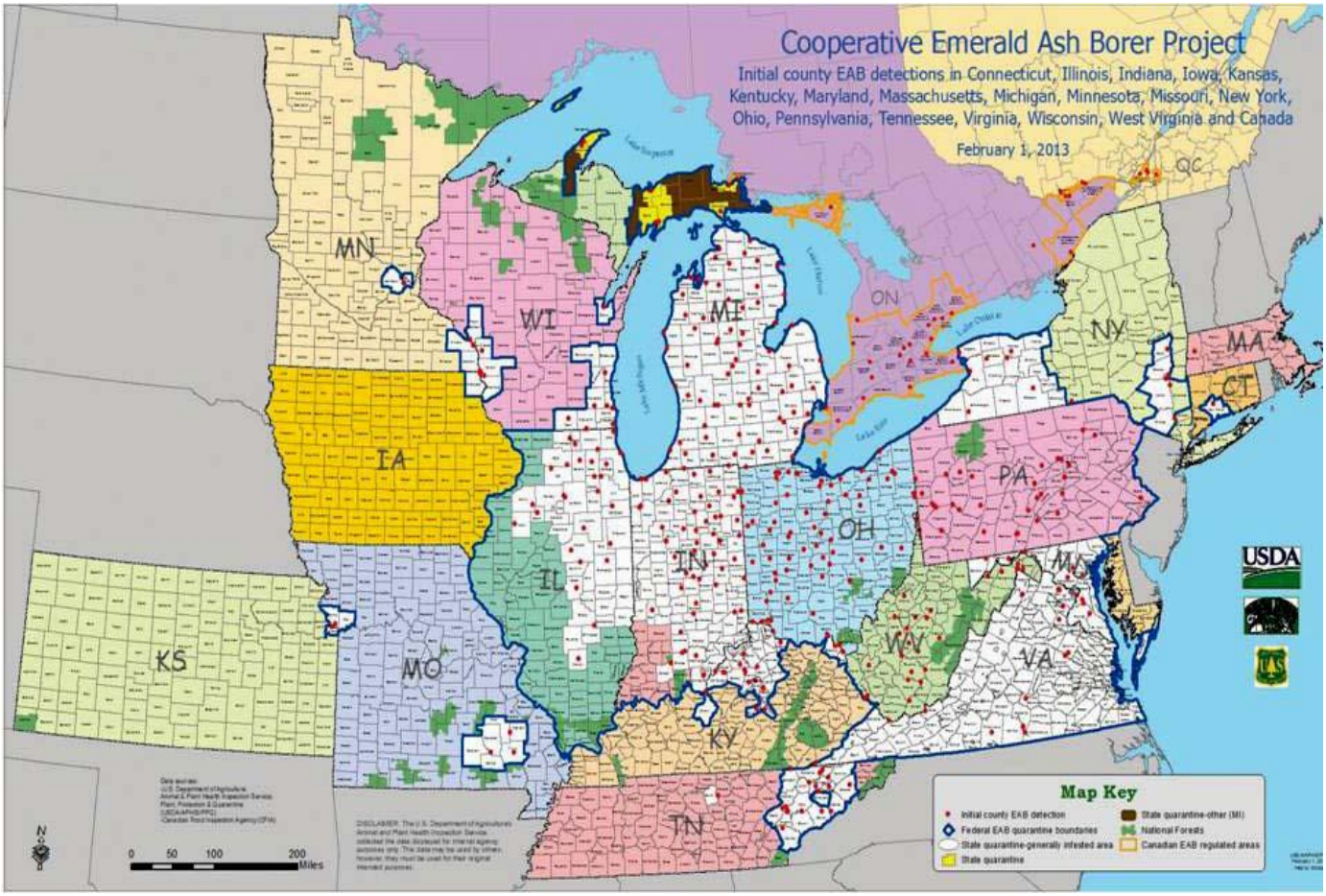
The Current Status of the Emerald Ash Borer in Kansas

The most recent distribution map (February 1, 2013) has been posted and as seen below. Kansas is now represented on-the-map. However, more exacting details pertaining to the Kansas situation require clarification.



In reaction to the reported detection of EAB at a camp site at Weatherby Lake in Platt Co, MO, persons from the Kansas-based USDA APHIS PPQ, Kansas Department of Agriculture, Wyandotte County Conservation District and Wyandotte County Extension Office conducted a general survey in Kansas at sites adjacent to Platt Co. On August 7, 2012, a single suspicious ash tree (in decline) was located.


Photo Credit: Erin Stiers – USDA APHIS PPQ

That tree was cut down on August 8. Upon inspection, a typical D-shaped exit hole was noted

(Photo Credits: Erin Stiers,USDA APHIS PPQ)

On August 9, a 4-foot section of suspicious branch was sent to the USDA APHIS PPQ EAB Laboratory in Michigan. The sample sat for a period of time before (on August 27) the dendrochronologist returned from vacation, assayed the branch and recovered a single borer larva.

Following protocol, because EAB had not been officially declared "found" in a "new state", on August 28, the specimen was sent to the USDA APHIS PPQ Headquarters in MD, where on **August 29, 2012**, the larva was officially determined to be that of an EAB.

Personnel from the above-listed agencies were joined by individuals from the Kansas Forest Service in conducting further inspection surveys. Gird overlays on local maps were made. All roads were driven for the purpose of mapping/locating ash trees. No additional trees appeared to be showing any suspicious signs of distress. Thus, currently based upon one EAB larva recovered from a single tree, Kansas is on the EAB MAP.

In 2013, USDA APHIS PPQ will be concentrating purple prism traps in Wyandotte County in the vicinity from which the infested tree was removed. They will also be conducting visual surveys. Personnel of companies providing arborist services are being encouraged be diligent in their observations and report any suspicious sightings. Also, USDA APHIS PPQ and KDA agencies will continue deploying purple prism traps at appropriate "high risk" locations in Kansas.

At this point, people should analyze what they hear and read. Preferably, rely on knowledgeable sources. For instance, in a recent seminar, the presenter showed the current distribution map of EAB in the US. It was stated (do not recall the exact word sequence) that EAB jumped from the Wappapello, MO, site to the Platt Co., MO site. This was highly unlikely given that the Missouri Department of Agriculture has (since 2008) conducted an intensive survey and trapping program at the Wappapello location. Only in 2012 was it documented that EAB had gradually expanded their range into adjoining counties at that southeast MO location (very distant from Platt Co. in northwest MO).

Rather, Missouri's Platt County infestation likely was the result of infested firewood carried into camping sites around Lake Weatherby. A good number of trees were found to be heavily infested with EAB. The image to the right is of a Platt Co. tree. Based on that image, it was estimated that the amount of damage was accumulated over a minimum of 5-6 years.

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Another concern of individuals is whether there should be a rush-to-treat ash trees against EAB. "Should I treat my ash trees against EAB?" "When should I initiate treatments? Both of these questions are intertwined. For that answer, I am resubmitting a portion of an article which appeared in the 2012 Kansas Insect Newsletter. Appropriate then and appropriate now.

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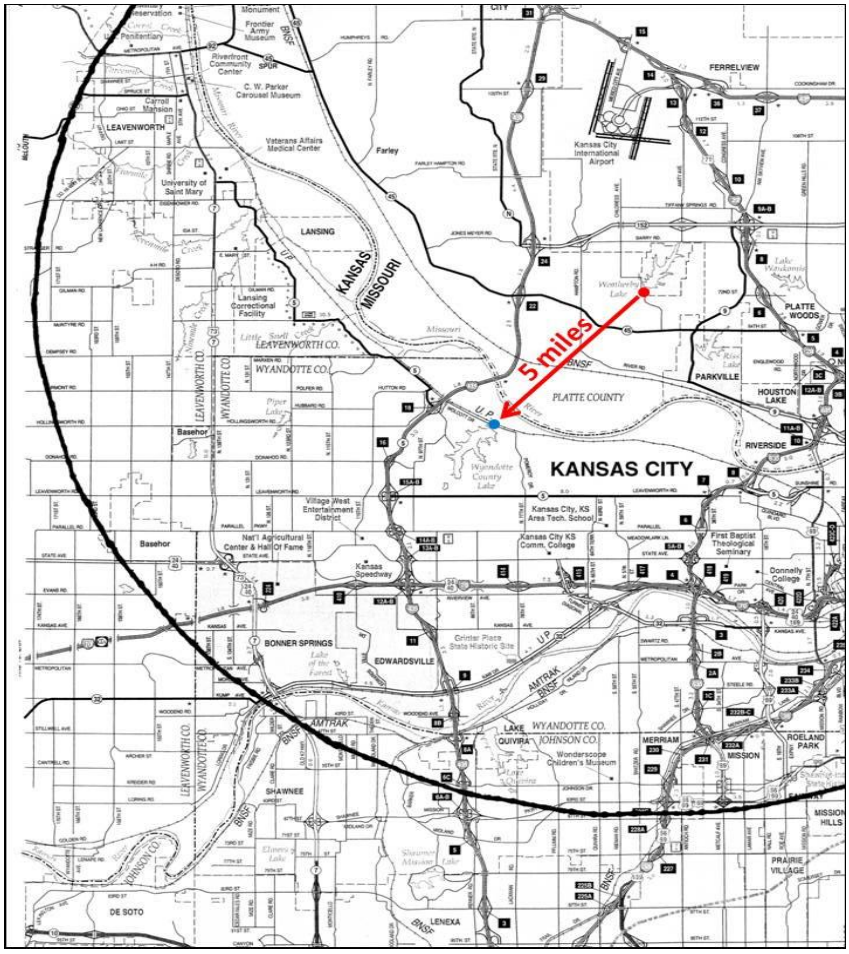
It is a personal choice to treat or not to treat a tree(s). Individual homeowners must determine the value/worth of a tree on their property, and what costs they are willing to incur in terms of preventative treatments. It would seem logical that one would also expect and accept a continuum of costs beyond an initial treatment if trees are to be protected against EAB in future years. Also, one should know and accept that despite best efforts, insecticide treatments do not guarantee positive outcomes. EAB populations may continue to grow in treated trees, and thus ultimately, treated trees may decline, die and require removal.

A decision to initiate treatments might also be based upon the proximity of a tree(s) in relation to known infestation of EAB. In a publication from the North Central IPM Center entitled **Insecticide Options for Protecting Ash Trees from Emerald Ash Borer**, it is stated that trees within 10-15 miles of a known infestation **"..… may be at risk"**. It further states that it probably might be too early to initiate treatments if trees are beyond the 15 mile range. The caveat in the previous sentence is the word "probably". Trees with low numbers of EAB may not show external symptoms. Furthermore, the initiation of a preventative treatment is best undertaken while a tree appears healthy and its vascular/transport system likely is intact thus facilitating the upward translocation of systemic insecticides through the trunk and to upper branches and the canopy.



Although the current initial find a bit south of Lake Weatherby is in Missouri (red dot) (a 5 mile distance from the Wyandotte site – blue dot), a portion of the Kansas metropolitan area falls within the aforementioned 15-mile range (roughly drawn partial circle). This is not to imply that Kansans within "the zoned area" need to adopt a rush-to-treatment stance. As previously stated, trees within 10-15 miles of a known infestation "… may be at risk". Again, individual homeowners need to assess their situations and determine for themselves what route to take in terms of preventative steps (if any) against EAB.

It is not possible (here) to succinctly present information regarding preventative methods to be used against EAB. It is not a simple procedure. There are factors to be considered when selecting a preventative route. Consult the aforementioned **Insecticide Options for Protecting Ash Trees from Emerald Ash Borer**, which was authored by 6 Land Grant University entomologists "in the thick" of the EAB predicament. They elaborate on the different types of insecticides, application methods and timing thereof. In most instances, maximizing chances to successfully combat EAB may entail hiring professional tree care specialists who have access to insecticides not available to homeowners, and the equipment and training to properly deliver/apply treatments.

Sincerely,

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