



Pest e-alerts



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Crapemyrtle Scale

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A new scale pest has been found infesting crapemyrtles in ornamental landscapes throughout Oklahoma. Crapemyrtle scale (aka crapemyrtle bark scale, CMS), *Eriococcus lagerstroemiae*, was first observed in the U.S. in 2004 by a landscape company in Richardson, Texas. This exotic scale pest likely originated from Asia, where it feeds on crapemyrtles and pomegranate. It has been spreading throughout Texas and other southern states, eventually reaching Ardmore, OK by 2012. Crapemyrtle scale is now found in eight counties in Oklahoma: Bryan, Canadian, Carter, Comanche, Marshall, Oklahoma, Payne, and Tulsa (Fig. 1).

Crapemyrtle is a popular landscape plant throughout the southern U.S., generating \$46 million in wholesale farm revenue each year. Crapemyrtle scale diminishes the appearance of crapemyrtles by depositing honeydew on the branches and foliage,

which encourages the growth of black sooty mold (Fig. 2). If left untreated, infested plants can suffer from inhibited photosynthesis and incur a reduction in aesthetic quality. Feeding from CMS can also lead to a reduction in flower size and quantity. While CMS can spread naturally

via wind, the widespread occurrence of this pest within a short timeframe suggests it is being moved around on infested nursery stock.

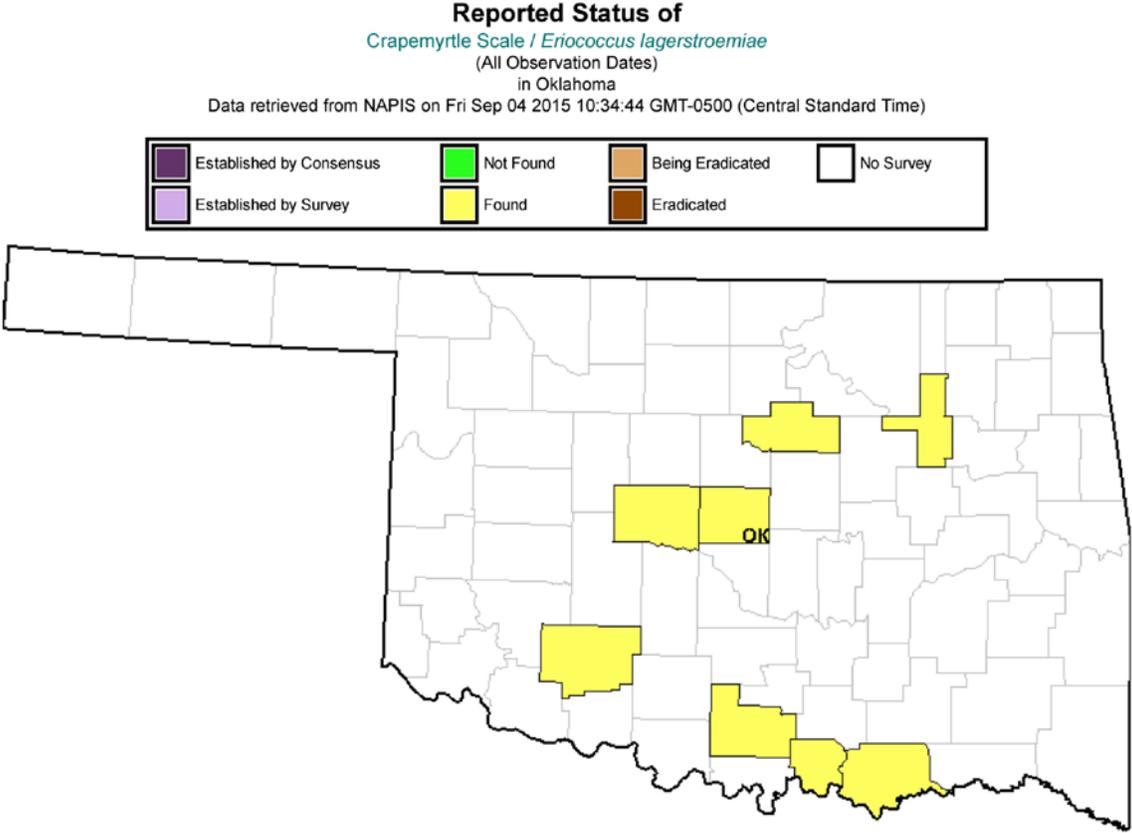


Fig 1. Current status of crapemyrtle scale in OK.



Fig 2. Black sooty mold on crapemyrtle leaves.



Identification, Host Preference, and Life Cycle

Crapemyrtle scale is closely related to azalea bark scale, which does not feed on crapemyrtles. Adult females are white to gray and felt like. They can be found encrusting twigs and trunks of crapemyrtles, and they exude a pink “blood-like” liquid when crushed. Initial detections are usually made by homeowners who notice the presence of black sooty mold on their crapemyrtles. This often leads to the initial diagnosis as crapemyrtle aphid, another sucking pest of crapemyrtles that is prevalent in some areas of the southern U.S. However, the appearance of white scale bodies on bark and the pink liquid associated with crushed scales is diagnostic of CMS. Under magnification, adult females are pink and measure about 2 mm (approximately 0.8 inches) long, and pink eggs and crawlers (nymphs) may be present (see left panel).



Female crawlers settle and begin to feed on plant sap by inserting their thread-like mouthparts beneath the bark. As they mature, they secrete waxy deposits that become felted or matted into a thick white or gray scale covering. When the waxy scale cover is removed, adult females are wingless and sessile (i.e., permanently attached to the host plant). Females lay eggs under the scale cover from May through September. Crawlers emerge from under the scale cover within a day or two, and disperse to new areas of the same plant or are windblown to new host plants. There may be as few as two generations in USDA Hardiness Zone 8 and up to four generations in Zones 9 and 10, based on observations from similar climatic zones in China (see Gu et al. 2014 for details).



Management

Crapemyrtle scale appears to be difficult to control based on data from Texas. Soil applications of neonicotinoid insecticides offer the best form of suppression of CMS (see Table 1 for chemical control recommendations). Current management recommendations include the following:



1. Carefully inspect crapemyrtles prior to purchase for signs and symptoms of CMS, including the presence of white to gray scale bodies on bark, honeydew and/or black sooty mold.

Always buy plants that are free of mechanical damage, such as bark wounds that may serve as “points of entry” for CMS.

2. The bark of infested plants can be scrubbed with a soft brush and a mild solution of dishwashing soap and water. Washing removes many of the female scales and egg masses, improving insecticide effectiveness, as well as buildup of black sooty mold on branches and trunks.

3. Horticultural oil may be effective when applied during the winter at a dormant oil rate. Ensure adequate coverage of the entire tree and use enough oil to reach behind loose bark, branch crotches, and other crevices.

4. Systemic insecticides provide the best chemical control option in efficacy trials to date. Apply to the root zone as a soil injection or soil drench in May through July. Allow the material several weeks to move into all plant tissues. **BEE CAUTION:** Neonicotinoid insecticides are highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

5. Lady beetles such as the twice-stabbed lady beetle are effective predators of many scale insects. However, predation of CMS occurs too late in the season for effective reduction in the growth of black sooty mold.

For a complete list of products available for managing scale insects in nurseries, see Oklahoma Cooperative Extension Service publication, CR-7092: Management of Insects and Mites in Tree Nurseries. If you observe crapemyrtles showing signs and symptoms of CMS infestation, please notify Dr. Rick Grantham (405-744-9417; entoman@okstate.edu) at OSU’s Plant Disease and Insect Diagnostic Lab or Dr. Eric Rebek (405-744-4846; eric.rebek@okstate.edu), State Extension Specialist for Horticultural Insects.

References

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Crapemyrtle scale

Table 1. Homeowner products effective against crapemyrtle scale and labeled for landscape use in Oklahoma.

| Active Ingredient | Trade Name (ex.) | Comments |
|------------------------------------|--|---|
| Dinotefuran | Green Light Insect Control with Safari 2G | Systemic insecticide applied around base of trunk. Determine rate based on trunk diameter or height of shrub. |
| Imidacloprid | Bayer Tree and Shrub Insect Control or Ferti-Lome Tree and Shrub Systemic Insect Drench | Systemic insecticide applied as a soil drench around base of trunk for trees and shrubs. Determine rate based on trunk diameter or height of shrub. |
| Imidacloprid + Clothianidin | Bayer Advanced Tree and Shrub Protect and Feed RTU Granules II | Apply granules around base of trunk and water in to soil. Determine rate based on trunk diameter or height of shrub. |
| Mineral oil | Bonide All Seasons Horticultural and Dormant Spray Oil Concentrate | Use dormant oil rate in winter and apply thoroughly to entire tree, ensuring enough solution reaches under loose bark, branch crotches, and other crevices. |

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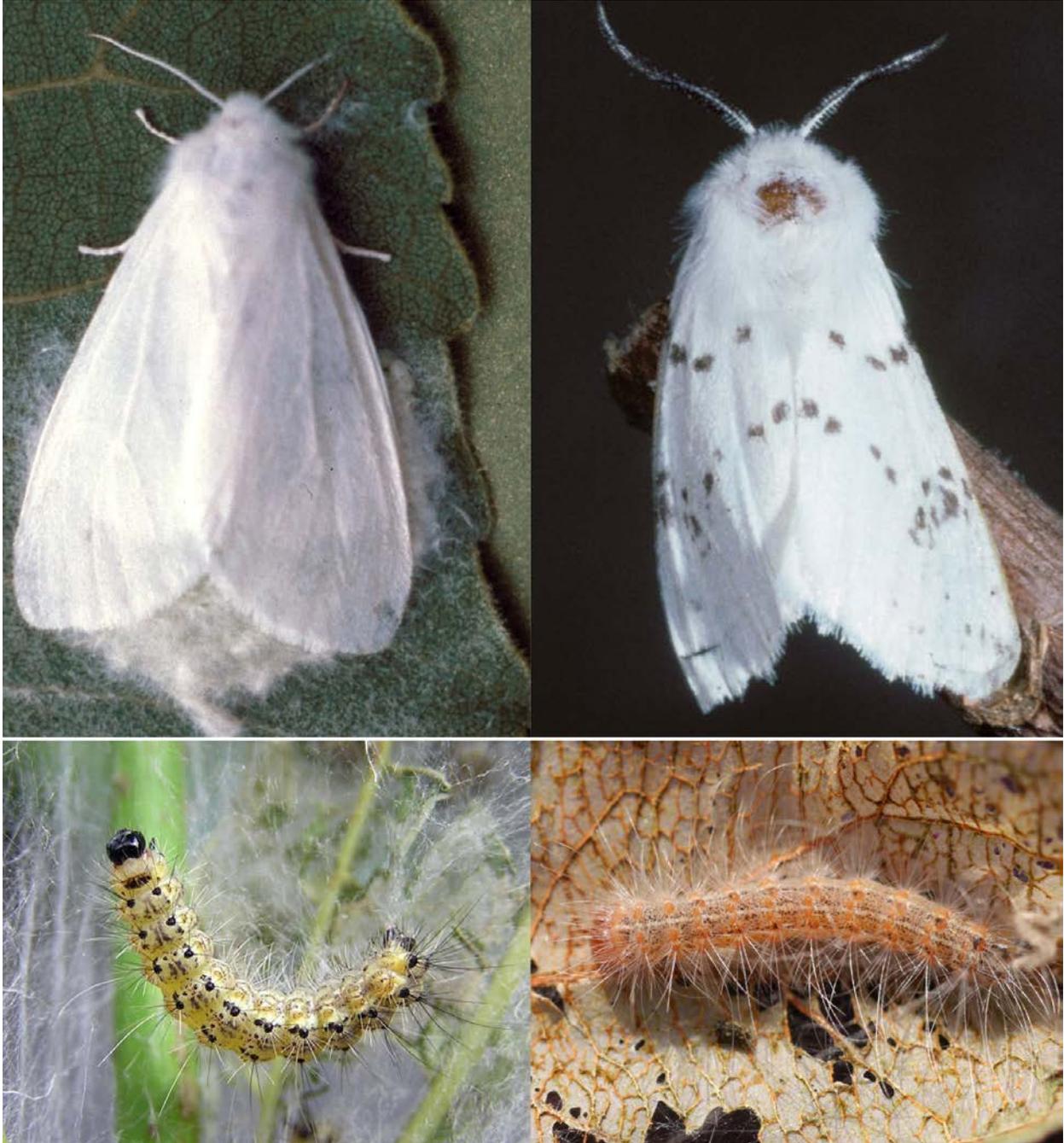
Fall Webworms Are Back!

Eric J. Rebek, State Extension Specialist for Horticultural Insects

Something is haunting Oklahoma landscapes these days. Those ghostly webs you’re seeing in pecans and other hardwood trees are the nests of fall webworm caterpillars. Despite their common name, these caterpillars can be seen in Oklahoma as early as May and extending into the fall. However, they are not normally this abundant! Yes, their nests are unsightly, but homeowners have nothing to fear. Defoliation by fall webworms at this time of year will not kill affected trees since the leaves have already produced enough sugar for the tree to go dormant and survive into another season.

Identification and Life Cycle

Adult fall webworm moths are almost pure white and have a wingspread of about 1 1/4 inches. Some individuals possess small, black spots on the front wings. Larvae may be pale yellow, yellowish green, greenish, or orange, but most have two rows of black spots running down the



back. The head may be red or black. The body is rather sparsely covered with long white hairs. They are found in webs on their host trees, which include at least 88 species of shade, fruit, and ornamental trees in the United States. In Oklahoma, fall webworms are most commonly seen feeding on persimmon, pecan, black walnut, and hickory. However, sycamore, birch, and redbud are often attacked in years of heavy infestations, and this year is no exception. Occasionally, infestations are reported on cottonwood, American elm, bald cypress, and sweetgum.

Adults of the overwintering generation emerge during May or occasionally in late April. Females begin to lay eggs in late May and early June. Each female can lay 400 to 500 eggs in masses on the underside of leaves. Egg masses may have a pale green background color and are covered with white hairs that come from the female's abdomen. Two races or forms of this insect exist in Oklahoma: blackheaded and redheaded. Larvae of the blackheaded form possess a black head capsule and black spots (called tubercles) on the body. This form generally begins hatching in May and immediately begins to spin a web, which expands as the larvae feed and grow. In late June, larvae mature and leave their host tree to pupate. There are three generations per year of the blackheaded form in Oklahoma. The redheaded form possesses an orange head capsule and orange tubercles. This form is more common on pecan in Oklahoma. First-generation adults emerge during July, mate, and lay eggs. Second-generation larvae are usually present from late July into early October. There are two generations per year of the redheaded form in Oklahoma.

Fall webworm larvae pass through as many as eleven stages of development (called instars). They produce a silky web that serves as shelter for the developing caterpillars. These nests are found on the terminal ends of branches. When alarmed, all caterpillars within a nest will display synchronized, jerky movements, reportedly as a defense mechanism. Eventually, the caterpillars leave their nest and seek a pupation site such as under the soil or within leaf litter. The overwintering stage is the pupa.



Damage

Damage is caused by larvae feeding on the leaves. Fall webworm populations are rarely large enough to defoliate trees except for young pecans and persimmons. For most forest and shade trees, the insect is not detrimental to the health of the tree. However, this pest does reduce the aesthetic quality of host trees. Economic damage can occur on pecans grown in orchards as defoliation affects tree vigor, yield, and nut quality. Earlier defoliation translates into more harmful damage, so pecan growers are advised to manage large populations of fall webworm that occur earlier in the season. Keep in mind that insecticide sprays will not eliminate the silky webs, which remain in trees until they naturally degrade.

Management

Despite the webs and defensive posturing by fall webworms, more than 50 species of parasites and 36 species of predators are known to attack fall webworm in North America. However, attacks by natural enemies usually do not reduce webworm populations below economically damaging levels (for pecan orchards and small nursery trees ready for market).

Remember, with the exception of smaller trees under heavy attack, fall webworms do not usually defoliate trees completely. Even so, deciduous trees are able to withstand defoliation events and should not die from webworm feeding unless the health of the tree is already compromised. Therefore, damage is mostly aesthetic and control is not typically warranted except for pecan orchards and possibly tree nurseries.

Larvae and their webs may be simply pruned out and destroyed, but those infesting the higher canopy will need to be treated to achieve control. When using conventional insecticides that rely on contact, sufficient spray pressure is needed to reach and penetrate the webs of these caterpillars. Several insecticides will normally provide control if adequate spray penetrates the webbing. A partial list of conventional and reduced-risk products for fall webworm control is provided in Table 2. Reduced-risk insecticides are less toxic and more target specific, so they are generally more environmentally friendly and safer for the applicator than conventional insecticides. Reduced-risk products, including those containing *Bacillus thuringiensis* subsp. *kurstaki* (Btk), spinosad, and insect growth regulators (IGR's), are applied to foliage near the webbing and often must be consumed to be effective. Small, young caterpillars are more susceptible to reduced-risk insecticides, so timing of application is important. As with any pesticide, be sure to read the label entirely before each use to maximize efficacy, prevent phytotoxicity, and minimize adverse environmental impacts.

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Johnson, W. T. and H. H. Lyon. 1991. Insects That Feed on Trees and Shrubs, Second Edition (revised). Cornell University Press.

Rebek, E.J. et al. 2009. E-918: Major Horticultural and Household Insects of Oklahoma. Oklahoma Cooperative Extension Service.

Table 2. Insecticide products effective against fall webworm and labeled for use in Oklahoma landscapes, pecan orchards, and nurseries.

| Active Ingredient | Trade Name(s) | Comments |
|---|---------------------------|-------------------------|
| Acephate | Orthene | Conventional systemic |
| Carbaryl | Sevin | Conventional spray |
| Chlorpyrifos | Dursban | Conventional spray |
| Deltamethrin | Deltagard | Conventional spray |
| Permethrin | Astro, Pounce, Prelude | Conventional spray |
| Chlorantraniliprole | Acelepryn | Reduced-risk systemic |
| <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> (Btk) | Dipel, Thuricide, Javelin | Reduced-risk spray, M |
| Methoxyfenozide | Intrepid | Reduced-risk spray, IGR |
| Paraffinic oil | Sunspray UFO | Reduced-risk spray, HO |
| Tebufenozide | Confirm | Reduced-risk spray, IGR |
| Spinosad | Conserve | Reduced-risk spray, M |

IGR = insect growth regulator

HO = horticultural oil

M = microbial

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Dr. Richard Grantham - Director, Plant Disease and Insect Diagnostic Laboratory

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