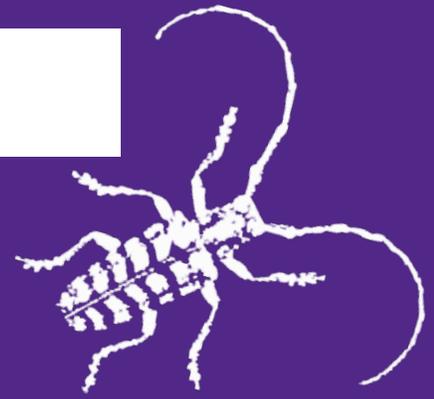


Kansas State University Extension Entomology Newsletter

For Agribusinesses, Applicators, Consultants, Extension Personnel & Homeowners

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Euonymus Scale

This is the time of year when euonymus scale (*Unaspis euonymi*) becomes noticeable in landscapes on evergreen euonymus (*Euonymus japonica*) and Japanese pachysandra (*Pachysandra terminalis*). Euonymus scale overwinters as a mated female on plant stems. Eggs develop and mature underneath the scale, and then nymphs hatch from eggs over a two to three week period. The newly hatched nymphs (crawlers) migrate along the stem and start feeding near the base of host plants. Nymphs can also infect adjacent plants by being blown around on air currents, resulting in infestations often not being detected until populations are extensive and damage is noticeable—like right now. Leaves eventually become spotted yellow or white. Plants located near structures such as foundations (**Figure 1**), walls or in parking areas are more susceptible to euonymus scale than plants growing in open areas that receive sunlight and air movement. Moreover, the variegated forms of euonymus are more susceptible to euonymus scale than the green forms.

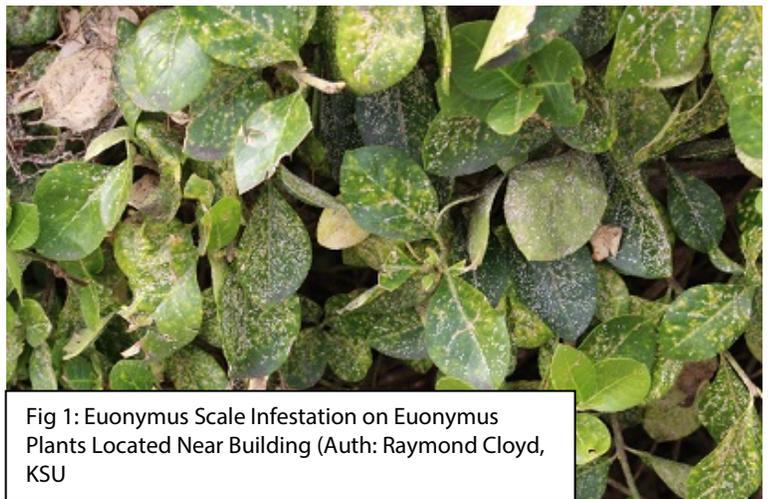


Fig 1: Euonymus Scale Infestation on Euonymus Plants Located Near Building (Auth: Raymond Cloyd, KSU)

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Heavy infestations of euonymus scale can ruin the aesthetic appearance of plants, causing complete defoliation or even plant death. Females are dark brown, flattened, and resemble an oystershell. Males, however, are elongated, ridged, and white in color (**Figure 2**). Males tend to be located on leaves along leaf veins whereas females reside on the stems. There may be up to three generations per year.

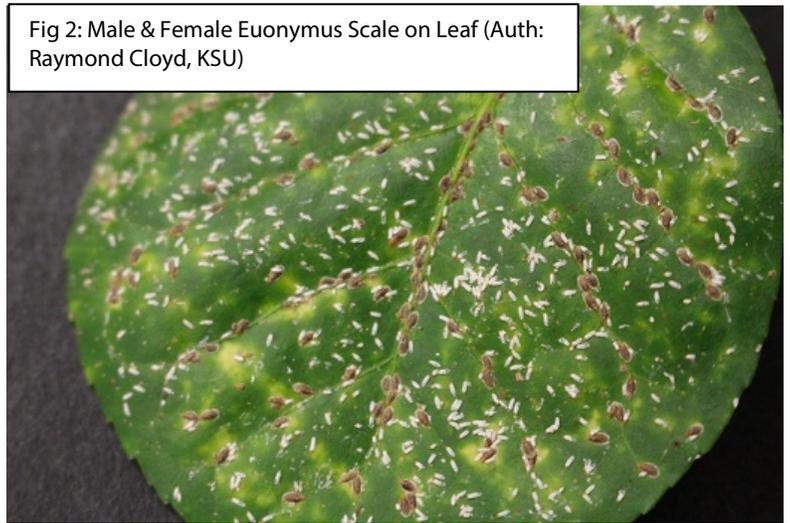


Fig 2: Male & Female Euonymus Scale on Leaf (Auth: Raymond Cloyd, KSU)

Cultural practices such as pruning out heavily infested branches—without ruining the aesthetic quality of the plant—are effective in quickly reducing euonymus scale populations; especially this time of year. Be sure to immediately discard pruned branches away from the area. If feasible, avoid planting *Euonymus japonica* in landscapes since this species is highly susceptible to euonymus scale. Winged euonymus (*Euonymus alata*) is less susceptible to euonymus scale, even when adjacent plants are infested. Insecticide applications in May through June (now is too late!), which is when the nymphs are most active, will help alleviate problems with euonymus scale later in the season (like right now!). Insecticides recommended for suppression of euonymus scale populations, primarily targeting the nymphs, include acephate (Orthene); pyrethroid-based insecticides such as bifenthrin (Talstar), cyfluthrin (Tempo), and lambda-cyhalothrin (Scimitar); potassium salts of fatty acids (insecticidal soap); and horticultural (petroleum or mineral-based) and neem (clarified hydrophobic extract of neem oil) oils. Always check plants regularly for the presence of nymphs, which will help time insecticide applications. Three to four applications performed at seven to 10-day intervals may be required; however, this is dependent on the level of the infestation. Euonymus scale is a hard or armored scale, so, in most cases, soil or drench applications of systemic insecticides such as imidacloprid (Merit) are not effective in suppressing euonymus scale populations; however, the systemic insecticide dinotefuran (Safari/Zylam), due to its high-water solubility (39,000 ppm), may provide suppression of euonymus scale populations when applied as a drench to the soil. Dormant oil applications can be conducted in winter to kill the overwintering mated females on stems. However, thorough coverage of all plant parts is important to obtain sufficient mortality.

Euonymus scale is susceptible to a multitude of natural enemies (e.g. parasitoids and predators), including: braconid and ichneumonid wasps, ladybird beetles, green lacewings, and minute pirate bugs. However, natural enemies may fail to provide enough mortality ('killing power') to significantly impact extensive populations of euonymus scale. Furthermore, insecticides such as acephate (Orthene), and many of the pyrethroid-based insecticides, including bifenthrin (Talstar), cyfluthrin (Tempo), and lambda-cyhalothrin (Scimitar) are very harmful to most natural enemies, so applications of these materials may disrupt any natural regulation or suppression.

Wheel Bug...A Cool Looking Bug!"

If you have spent any time outdoors lately, you may have noticed a very distinct, grotesque looking insect on trees, shrubs, or near homes. This insect is the wheel bug (*Arilus cristatus*), which is common, and widely-distributed throughout Kansas and the USA. Wheel bugs, also called assassin bugs, are predators that prey on insect pests. However, the nymphs and adult can inflict a painful bite when handled by humans.

Adult wheel bugs are 1.0 to 1.25 inches long, robust with long legs and antennae, and have a stout beak and large eyes on a narrow head (**Figure 1**). They are dark-brown to gray and possess a wheel or crest with 8 to 12 protruding teeth-like structures (tubercles) on the thorax that looks like a cogwheel—similar to the dinosaur—Stegosaurus (**Figure 2**). Wheel bugs have two long, slender antennae that are constantly moving or weaving around. Females are typically larger than males. Females lay eggs that resemble miniature brown bottles with white stoppers (**Figure 3**).

Fig 1: Wheel Bug Adults Mating. Male is on top of Female (Auth: Raymond Cloyd, KSU)



Fig 2: Wheel Bug Adult (Auth: Raymond Cloyd, KSU)



Fig 3: Wheel Bug Eggs on Leaf Underside (Auth: Raymond Cloyd, KSU)

The eggs are laid in clusters of 40 to 200, and are glued together and covered with gummy cement that protects eggs from weather extremes and natural enemies (e.g. parasitoids and predators). The egg clusters are located

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on leaves, or the trunk or branches of trees or shrubs. The nymphs hatch (eclose) from eggs and are bright red in color with black markings. The nymphs do not have the wheel or crest. The life cycle, from egg to adult, can take 3 to 4 months to complete. Wheel bugs are active day and night, and are very shy, tending to hide on the underside of leaves. The wheel bug has one generation per year and overwinters as eggs.

Wheel bugs are voracious predators feeding on a wide-variety of insects, including caterpillars (**Figure 4**), beetles, true bugs, sawflies, and aphids. Unfortunately, wheel bugs will feed on beneficial insects such as ladybird beetles and honey bees. The mouthparts are red-brown in color and resemble a tube or straw that is located underneath the head. The mouthparts extend out when wheel bugs are ready to “stab” prey. Wheel bugs paralyze prey with their saliva, which contains a toxic substance that immobilizes prey within 30 seconds. In addition to feeding on insects, wheel bugs are cannibalistic, and will feed on each other...AWESOME 😊.

Fig 4: Wheel Bug Adult Preparing to Attach a Caterpillar (Auth: Raymond Cloyd, KSU)



Raymond Cloyd

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Beekeeping Basics Workshop

Join K-State Research and Extension for an informative all-day "Beekeeping Basics" workshop on Tuesday, September 24, from 8 a.m. - 4 p.m. at Sunset Zoo. This beekeeping workshop will provide an introduction to beekeeping, as well as provide education on the parasites, pathogens, and other maladies associated with honey bees, including the effects of pesticides on honey bees. Participants will learn the importance of honey bees and see how to build their own beehive.

Whether you're new to beekeeping or have some experience, you're sure to learn something new. Discussions will be led by K-State Extension Entomologist, Dr. Raymond Cloyd, as well as other beekeepers in the Manhattan area. This event is limited to 30 participants.

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Lunch will be provided. Please pre-register and make a payment at <https://www.ksre.k-state.edu/pesticides-ipm/>. If you have any questions, please email Brooke Garcia at bmstiffl@ksu.edu.

Read the KSRE Tuesday Letter Announcement: <https://ksre.ksu.edu/tuesday/announcement/?id=55234>

Raymond Cloyd and Brooke Garcia

HOME

New Extension Publication – Oak Leaf Itch Mite

We have a new extension publication available entitled, **Oak Leaf Itch Mite**

This new extension publication, which is actually an update of a previous extension publication, provides up-to-date information on the biology, bites and symptoms, and prevention associated with the oak leaf itch mite (*Pyemotes herfsi*). The extension publication is available from the following website:

<https://www.bookstore.ksre.ksu.edu/pubs/MF2806.pdf>

Raymond Cloyd

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Switching Things Up – Entomology Quiz

Question: What Are The Seven Structures Attached To The Twig?

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If You Think You Know What It Is, Please Send Your Answer (Or Best Guess) To Sharon Schroll At sschroll@ksu.edu

The Answer Will Be Provided In The Next Issue Of The Newsletter.

Raymond Cloyd

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Sincerely,

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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