

Elm Seed Bugs

Ryan Davis, Entomologist
Utah State University Extension



Utah Plant Pest Diagnostic Lab

UTAH PESTS

UTAH PESTS HELPS TO SOLVE PLANT PEST ISSUES
THAT CONCERN UTAH CITIZENS EVERY DAY

IPM PEST ADVISORIES

Pest Identification Guides

BROWSE UTAH PESTS

- Fact Sheets
- Slide Presentations
- Utah Pests News
- IPM Pest Advisories
- Bees and Other Pollinators
- Educational Videos
- Contact Us

UTAH PESTS PROGRAMS

- Utah Pests Home
- IPM Integrated Pest Management
- School Integrated Pest Management
- Utah Plant Pest Diagnostic Lab
- Cooperative Agricultural Pest Survey

Latest News

Disease resistance successfully spread from modified to wild mosquitoes

Using genetically modified mosquitoes to reduce or prevent the spread of disease is a rapidly expanding field of investigation. One challenge is ensuring that GM mosquitoes can mate with their wild counterparts so the

utahpests.usu.edu



Utah Plant Pest Diagnostic Lab

UTAH PESTS

UTAH PESTS HELPS TO SOLVE PLANT PEST ISSUES THAT CONCERN UTAH CITIZENS EVERY DAY

IPM PEST ADVISORIES

Pest Identification Guides

BROWSE UTAH PESTS

- Fact Sheets
- Safe Pesticide Insecticides
- Utah Pests News
- IPM Pest Advisories
- Basic and Other Publications
- Educational Videos
- Contact Us

UTAH PESTS PROGRAMS

- Utah Pests Home
- IPM Integrated Pest Management
- School Integrated Pest Management
- Utah Plant Pest Diagnostic Lab
- Cooperative Agricultural Pest Surveys

Latest News

Tracking mosquitoes with your cellphone

It's a sound that can keep even the weariest among us from falling asleep: the high-pitched whine of a mosquito. This irritating buzz already makes us run, slap and slather on repellent. But if Stanford University researchers have their way, it may also prompt us to take out our cell phones and do a little science.

Read More

Common Structural and Health-Related Pests of Utah

Identify common urban & health pests such as:
insects • spiders • vertebrates

Common Structural and Health Related Pests of Utah covers over 90 of Utah's common insect, spider and vertebrate pests. The guide contains information on the identification, biology and management of each pest.

PDF ONLINE

Common Ornamental Pests of Utah

Identify common tree and shrub pests such as:
insects • mites • diseases • vertebrates • weeds

Common Ornamental Pests of Utah covers over 150 of Utah's common insect, mite, mollusk, disease, vertebrate and weed pests of trees and shrubs in Utah. The guide contains information on the identification, biology and management of each pest.

PDF ONLINE

Common Turfgrass Pests of Utah

Identify common turf problems caused by:
abiotic disorders • arthropods • diseases • animals • weeds

Common Turf Grass Pests of Utah covers over 50 of Utah's common insect, mite, disease, vertebrate and weed pests of turf grass in Utah. The guide contains information on the identification, biology and management of each pest.

PDF ONLINE

utahpests.usu.edu; utahpestlab@gmail.com



Elm Seed Bug Fact Sheets

Elm Seed Bug

Ryan S. Davis
Arthropod Diagnostician

What You Should Know

- Elm seed bug is Utah's newest nuisance pest.
- Unlike the boxelder bug, elm seed bug activity peaks in mid-summer.
- Elm seed bugs emit a pungent odor when crushed or handled, but are not a health threat.
- Exclude elm seed bugs by sealing cracks and crevices on structure exteriors.
- Windows and doors must be well-sealed to prevent elm seed bugs from entering; light-fitting screens and door sweeps with no gaps are essential.
- Residual pyrethroid insecticides applied as perimeter foundation treatments and around window sills, doors and to the undersides of eaves can help reduce elm seed bug entry.



Fig. 1. Elm seed bug adults hiding under overlapping elm leaves.

become a major nuisance pest, entering homes and buildings in great numbers, similar to the boxelder bug. Unlike boxelder bug, however, peak nuisance activity occurs from mid-June through August and elm seed bugs can emit a pungent odor from scent glands, similar to bitter almonds.

Introduction

In July 2014, the Utah Plant Pest Diagnostic Lab and USDA APHIS confirmed the first reported occurrence of elm seed bug (Lygaeidae: *Arccatus melanoccephalus*) in the state of Utah (Fig. 1). A native of Europe, the elm seed bug was first identified in the U.S. in Idaho in 2012. It has since been found in Oregon, Washington, British Columbia, Canada and in various locations throughout Asia and Europe. While Utah's first submission originated from Salt Lake County, elm seed bug is now widely distributed along the Wasatch Front and Cache Co., and has been reported west to Duchesne Co., east to Tootle Co. and south to Grand Co.

As a member of the seed bug family (Lygaeidae), this insect feeds primarily on elm seeds, but has also been reported on linden and oak. In Utah and Idaho, it has also been observed feeding on elm leaves. In Utah, as in other locations, this insect has

Identification

Adults are about 1/3 inch long with dark, rusty-red and black coloration. On the back, there is an upside-down black triangle set inside two rusty-red triangles (Figs. 2a and 2b). Wings are held crossed over the back. Half of the wing is membranous and black while the other half is leathery and red and black. Next to end of the wing, there are noticeable white dots interspersed with rusty-red and black dots (Fig. 2a). The "belly" of the insect, when laying on its back, is red (Fig. 2c - far left side).

Nymphs: Immature elm seed bugs are similar in appearance to immature boxelder bugs and false chinch bugs.

page 1

Elm Seed Bug: A New Nuisance Pest in Colorado Homes

Fact Sheet No. 524

Insect Series | Home & Garden

M. Shrader

The elm seed bug (*Arccatus melanoccephalus*) is a pest native to Europe and the Mediterranean region and was first detected in 2012 in Idaho. Since then it has been detected in Utah, Oregon, Washington, British Columbia, and, most recently, in Colorado. The first detection of this insect was made in July 2017, and it is presently known in Mesa, Delta and Montrose counties. With the widespread presence of its host plant, the Siberian elm, this insect will likely spread through much of Colorado.

This insect feeds primarily on elm seeds, but has also been reported on linden and oak trees in Utah. Elm seed bug adults become a major nuisance pest, similar to the boxelder bug, by entering homes and buildings in great numbers.

The adult bugs are the stage normally present in a home. These are about 1/3 inch long with dark, rusty-red and black coloration (Fig. 1). The underside of the head there is an upside-down black triangle set inside two rusty-red triangles. Next to the edges of the wings are noticeable white dots interspersed with red and black dots (Fig. 2). Wings in the fall, they often appear as if they are held through September.

Immature elm seed bugs (nymphs) that develop outdoors on seeds lack wings and are smaller than the adults. As they grow, black wing pads develop and the abdomen appears a lighter red color with two black dots in the middle (Fig. 4).

Elm seed bugs are only one of several insects that are seasonal nuisance pests known as the boxelder bug (Fact Sheet 5.522), which can be common indoors from autumn through most of spring. It is slightly larger than elm seed bug and has distinctive orange and white markings on its abdomen during summer and autumn is the western elm seed bug (Fact Sheet 5.548).



Quick Facts

- The elm seed bug is an insect that has newly arrived in Colorado that feeds on the seeds of Siberian elms.
- Elm seed bug cause nuisance problems by moving into buildings in summer and early autumn. They do not reproduce indoors.
- The best management of elm seed bugs is to seal cracks and crevices on the exterior of buildings so the insects cannot enter, indoors they can be managed by vacuuming.

THE GREEN THUMB HOW-TO'S Managing Elm Seed Bugs around Your Home

at a glance

- This non-native insect invades homes in July and August from surrounding landscapes where nymphs are feeding.
- The elm seed bug does not direct the plant's growth other than its feeding.
- Call and weather-strip around windows and doors to prevent bugs from entering your home.
- Apply insecticides as outdoor perimeter treatments to home perimeters and around foundation if pest numbers are unmanageable.

Introduction

The elm seed bug (*Arccatus melanoccephalus*) is a Mediterranean species that first established in the United States in 2012 in Idaho. It is currently known in Utah, Oregon, Washington, British Columbia, and, most recently, in Colorado. The first detection of this insect was made in July 2017, and it is presently known in Mesa, Delta and Montrose counties. With the widespread presence of its host plant, the Siberian elm, this insect will likely spread through much of Colorado.

Identification

Elm seed bug adults are about 1/3 inch long with dark, rusty-red and black coloration. On the back, there is an upside-down black triangle set inside two rusty-red triangles (Figs. 2a and 2b). Wings are held crossed over the back. Half of the wing is membranous and black while the other half is leathery and red and black. Next to end of the wing, there are noticeable white dots interspersed with rusty-red and black dots (Fig. 2a). The "belly" of the insect, when laying on its back, is red (Fig. 2c - far left side).

Management

The best management of elm seed bugs is to seal cracks and crevices on the exterior of buildings so the insects cannot enter, indoors they can be managed by vacuuming.

Figure 1. Left: elm seed bug, right: nymph. Photo credit: Ward Strong, Kalamazoo Forestry Centre, Vernon, B.C.

Figure 2. Adult elm seed bug. Note distinctive white stripes on the sides of the triangle and white spots on the edges and lower part of the body. Photo credit: Ward Strong, Kalamazoo Forestry Centre, Vernon, B.C.

Pest Alert Elm Seed and "Tuxedo" Bugs New Invasive Seed Bugs in British Columbia

Introduction

The elm seed bug, *Arccatus melanoccephalus* and tuxedo bug, *Rugilus albocinctus* are native to Europe and the Mediterranean region. They were first reported in Canada in Kelowna, British Columbia in 2014. The seed bugs are new agricultural pests but can be a nuisance in high numbers because they enter homes and businesses. Elm seed bugs emit unpleasant odors when crushed and their fecal droppings on structures such as doors and windows can be unsightly. Elm seed and tuxedo bugs do not bite people.

Identification

Elm seed bug: Adults are 6.5 - 7 mm (about 1/2 inch) long, black and rusty red colour with black triangle bordered by a rusty coloured rectangle on the back (Figure 1). The outer margin of the abdomen has contrasting black and white bands. Immature stages (nymphs) have a black head and a red abdomen; older nymphs have wing buds and a white, distinct paired white spots at the top and lower part of the body and a white spot at the tip of the body (Figure 2).

Life cycle

The life cycle of elm and tuxedo seed bugs in British Columbia has not been determined.

Figure 1. Adult elm seed bug. Note distinctive white stripes on the sides of the triangle and white spots on the edges and lower part of the body. Photo credit: Ward Strong, Kalamazoo Forestry Centre, Vernon, B.C.

Figure 2. Adult tuxedo bug. Note distinctive white stripes on the sides of the triangle and white spots on the edges and lower part of the body. Photo credit: Ward Strong, Kalamazoo Forestry Centre, Vernon, B.C.

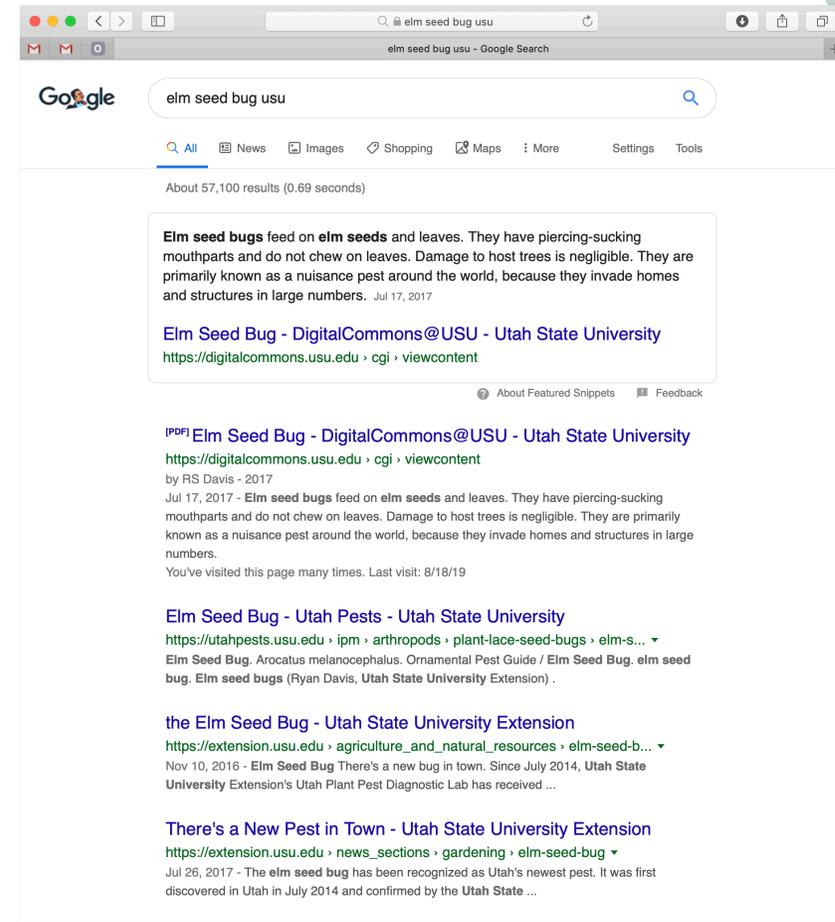


UTAH PESTS

Elm Seed Bug Fact Sheets

Search on Google, etc.

- “elm seed bug USU”
- “managing elm seed bug Idaho”
- “elm seed bug CSU”
- “elm seed bug British Columbia”



Utah Plant Diagnostics Lab

- Diagnostics
- Visual inspection
 - Visual/microscopic
 - Most samples (turf)
 - \$10
- Email/Pics: Free
- Culturing
 - Fungal/bacterial
 - \$15
- Genetic
 - Virus testing and other
 - \$30



Elm Seed Bug: Outline

- Biology
- Identification
- Management



Elm Seed Bug

Lygaeidae *Arocatus melanocephalus*



Feeds on elms

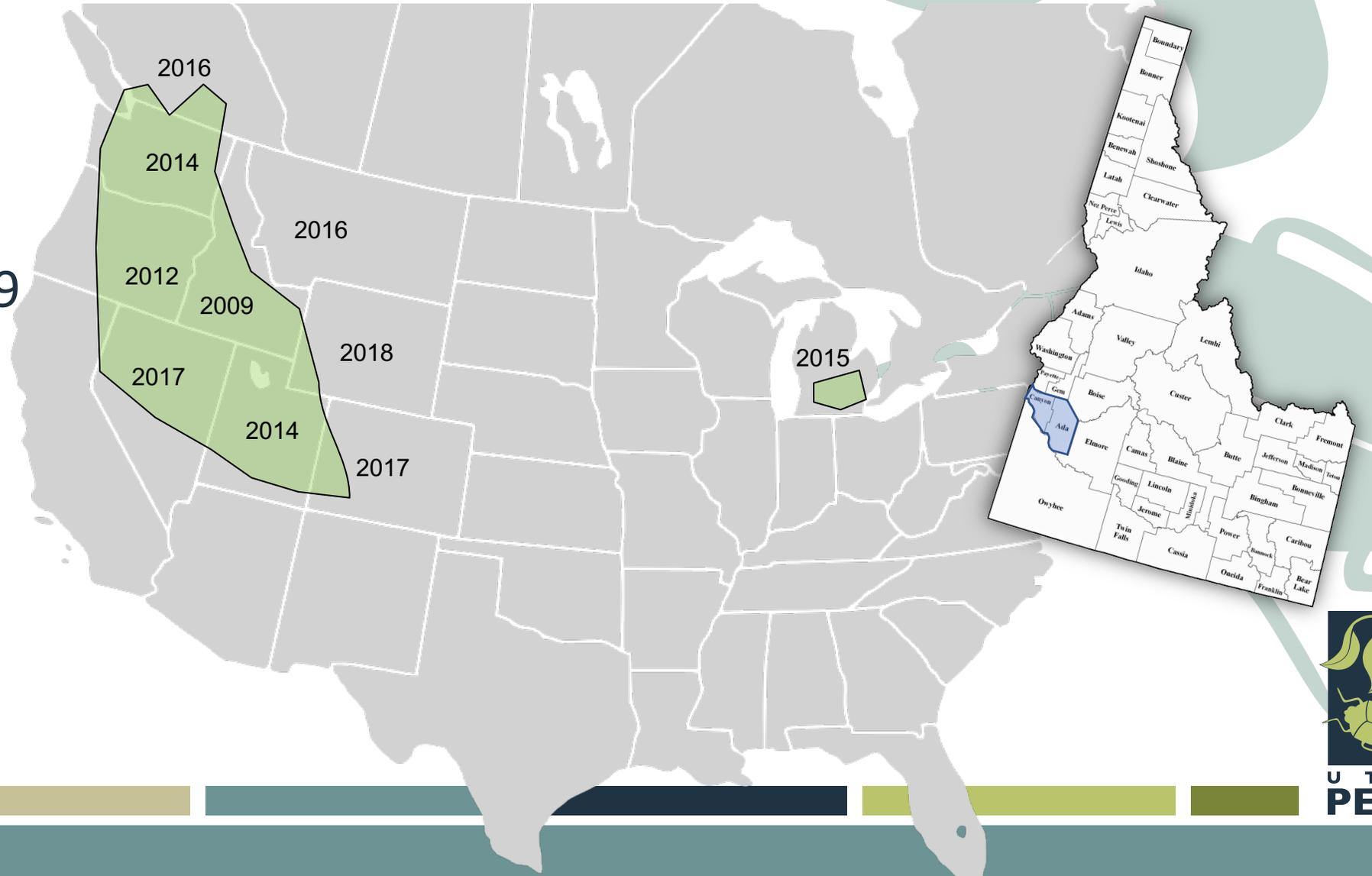
Mediterranean Origins

- Spread by commerce & people



Approximate NA Distribution

- First detection
US: Idaho 2009
- First detection
Canada:
Kelowna 2016



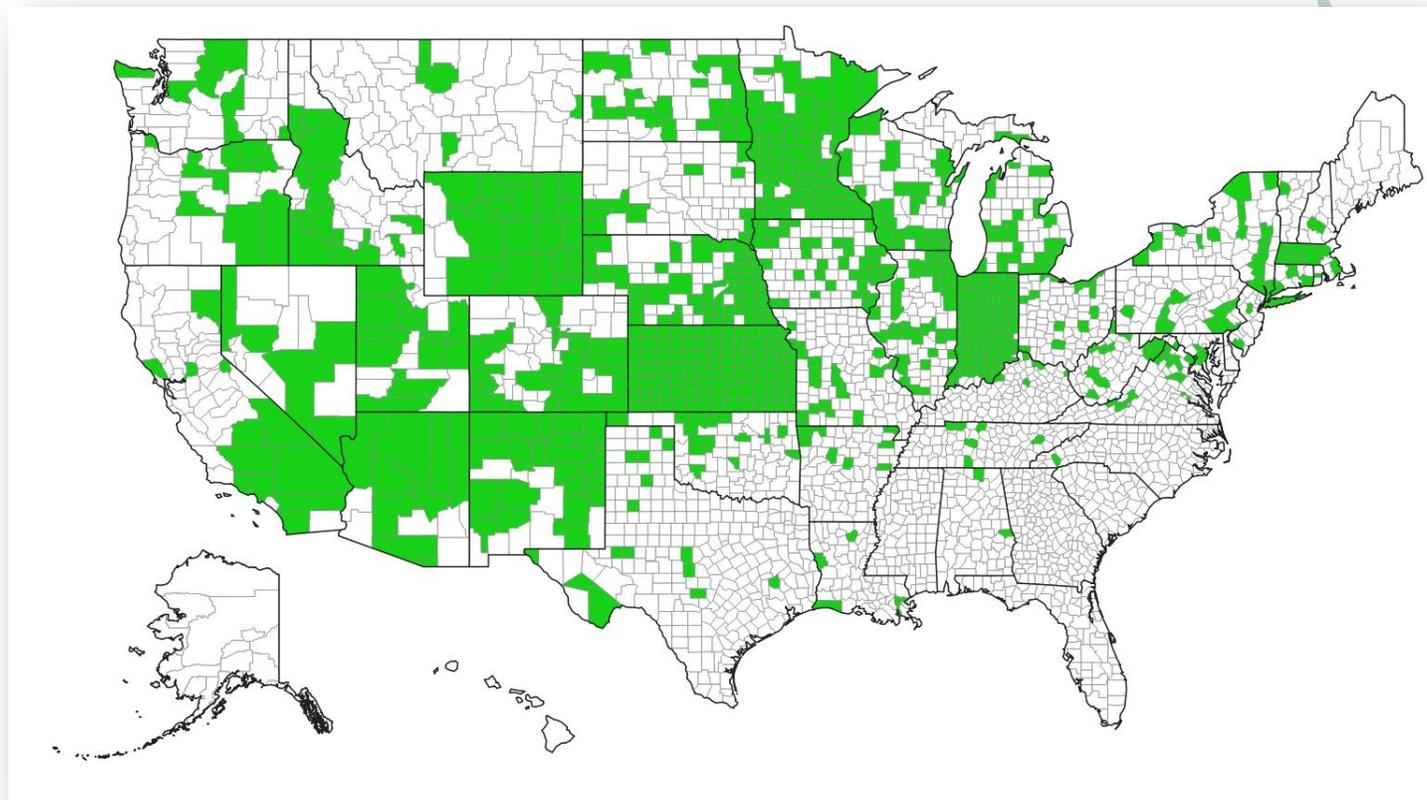
Probably in UT for a While

- UT first detection: Salt Lake County, 2014
- UT EAB distribution as of 2017



How Far Will ESB Go?

Siberian elm distribution



Biology



Host Plants

- Elms (*Ulmus* spp.)
- Also recorded from:
 - Linden (*Tilia* spp.)
 - Oak (*Quercus* spp.)
 - Birch (*Alnus* spp.)
- Tree damage minimal



Life Cycle

- 1 Gen/yr
- Eggs laid in spring on/around elm flowers
- Nymphs feed on seeds and leaves
- Nymphs found on/around trees/structures May-June



Life Cycle: Important Habits

- Adults migrate away from trees toward structures starting in mid-June; peak July-August (temps > 85F)
- Prefer cool sides of structures*
- Some activity in the fall/spring/winter
- Adults migrate away from trees (300 ft.?)



Damage

- Intrusion
- Annoyance
- Fecal Spots
- Odor
- Not a health threat



Adult Identification

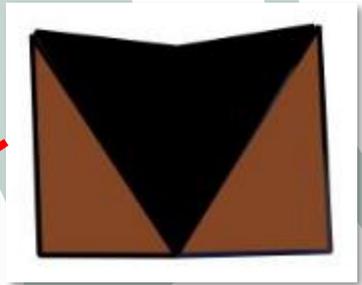
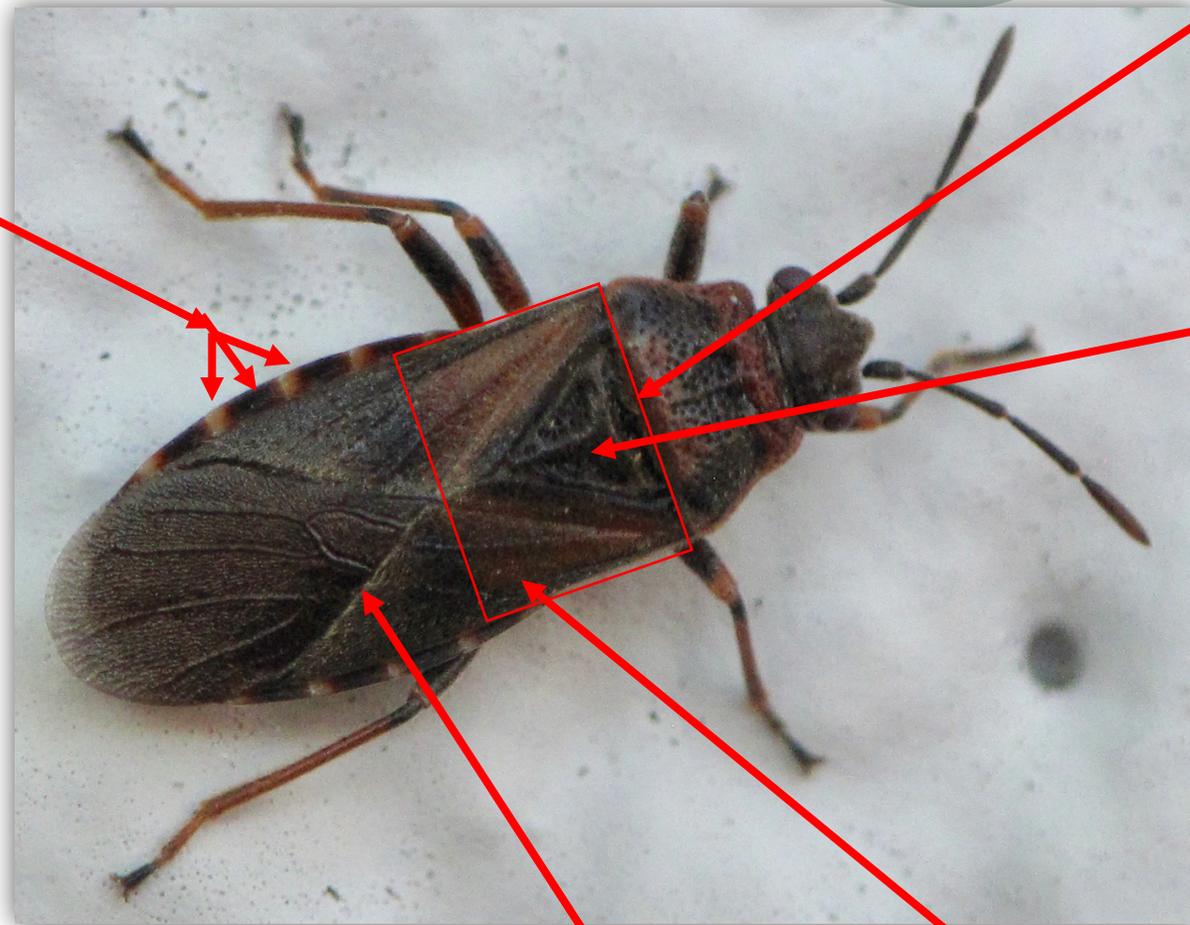
Alternating black and white bands on sides of abdomen

Size ~ ¼ inch

~ 1/3 size of box elder bug



Box elder bug
Elm seed bug



Scutellum

Hemelytra

Corium

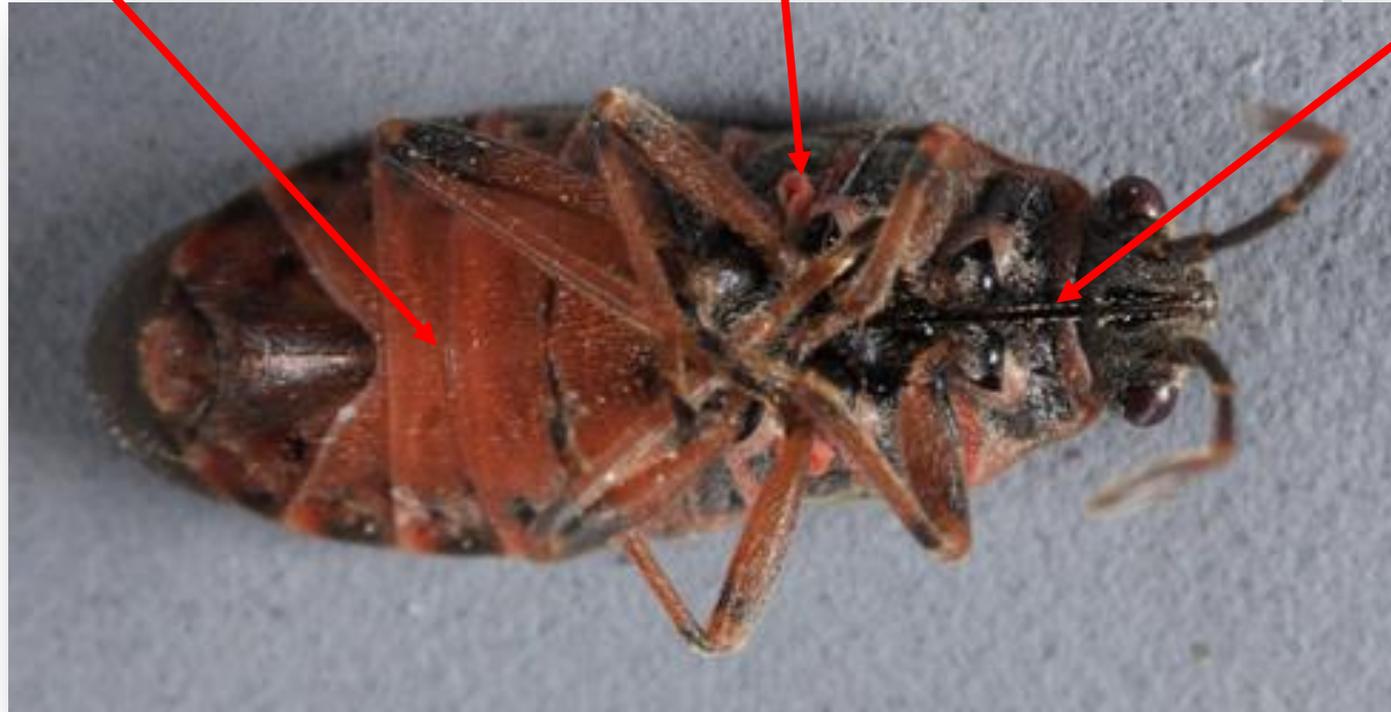


Adult Identification

Bright red abdomen
on underside*

Metathoracic
scent gland

Piercing-sucking
mouthparts



Adult Identification

- Adults grayish-black from a distance
- Nymphs are red & black



Adult Look-Alikes



Box elder bug



Elm seed bug



Small milkweed bug

Adult Look-Alikes



Tuxedo bug



False chinch bug



Arhyssus spp.

Look-Alikes



Birch catkin
bug



Chinch bug



Bed bug

Nymph Identification

Nymphs & shed skins



Nymph Look-Alikes



Tuxedo bug



R. vulgaris



Small Milkweed bug



Birch catkin bug



Box elder bug



Chinch bug

Nymph Look-Alikes



Elm seed bug



False chinch bug

Nymph Look-Alikes

- Look for nymphs spring – mid-summer
- Look around/on:
 - *Ulmus* spp. (elms) (linden & oak?)
 - Structures & surrounding ground



Management



Non-Chemical Management

ESB love windows & doors



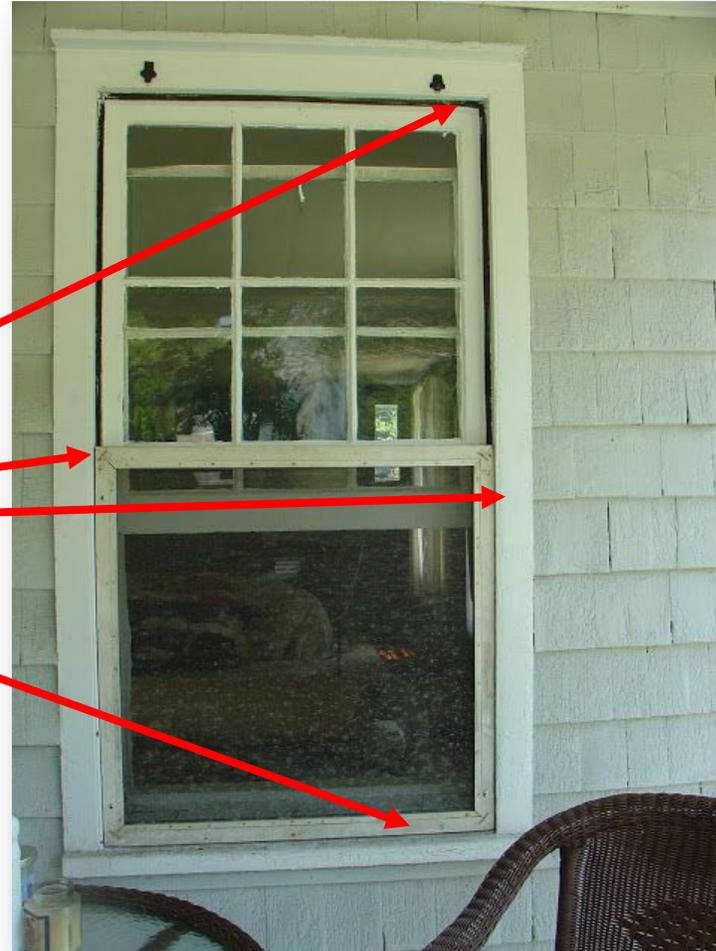
Non-Chemical Management

Exclude (*as best you can*)



Non-Chemical Management

Exclude (*as best you can*)



Non-Chemical Management

Exclude (*as best you can*)



Non-Chemical Management

Don't bring/let them in...



Non-Chemical Management

Clean up debris/seeds



Non-Chemical Management

Once inside, vacuum



Non-Chemical Management

Once inside, sticky traps



Non-Chemical Management

Tree removal is a possibility, but...



Non-Chemical Management

Tree removal is a possibility, but...



Non-Chemical Management

Tree removal is a possibility, but...



Chemical Management

Leverage your knowledge of other “annoying hemipterans” and occasional invaders and overwintering pests.



Box elder bug



Conifer seed bug



Elm leaf beetle



Asian multicolored lady beetle



Brown marmorated stink bug



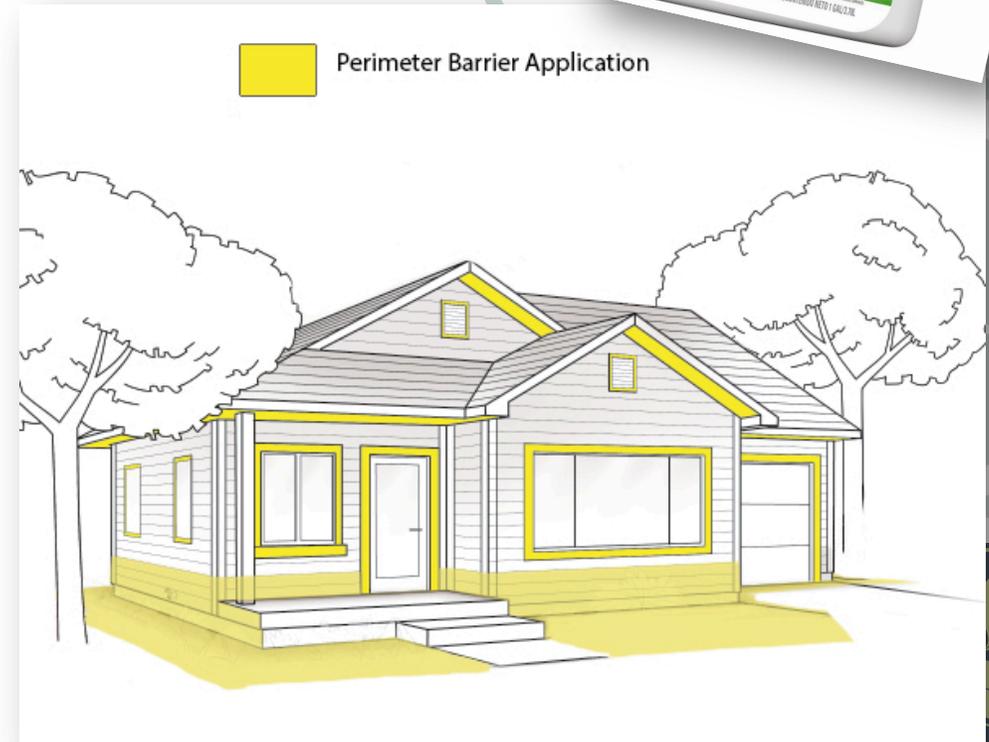
Management: Pyrethroids

Structural perimeter barrier application

- Exterior: 3 ft. up; 10 feet out
- Interval: varies by product (7-21 days common)
- Clean application area before applying
- Carefully read product label

Apply to:

- Foundation
- Ground
- Around windows
- Around doors
- Under eaves
- Other insect entry points (crack & crevice)



Management: Pyrethroids

- Inspect all sides of a structure prior to application
- Elm seed bug may only be present on a few sides
- Pesticide needed in areas of activity



Elm Seed Bug: Take-Home Points

- Invasive insect recently introduced from the Mediterranean region; is a nuisance pest
- About 1/3 size of a box elder bug; hosts: Elms
- Period of peak activity in structures is July-August; prefers cool-sides of structures
- Exclude as best you can; target windows and doors; vacuum bugs that make it inside
- Target adults with perimeter barrier applications using CS, SC or WP formulations



Utah Plant Pest Diagnostic Lab

Need help?

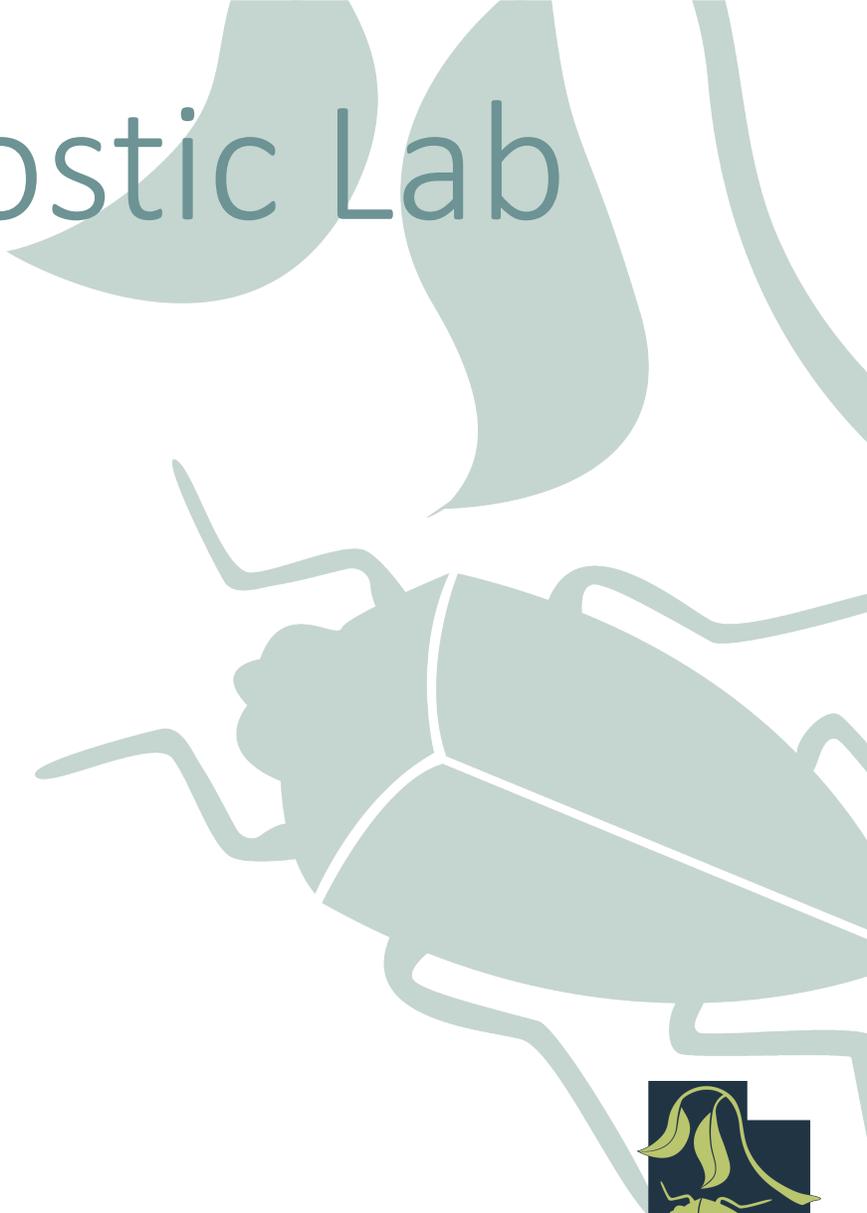
Ryan Davis

ryan.davis@usu.edu

utahpestlab@gmail.com

435-797-2435

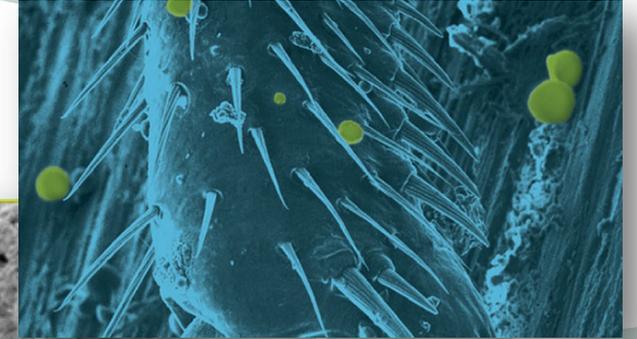
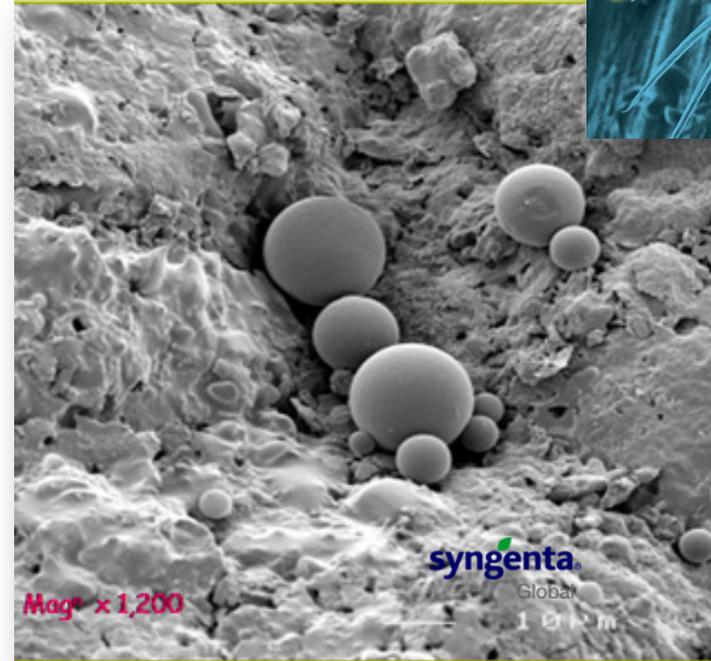
utahpests.usu.edu



Management: Pyrethroids

Best formulations for elm seed bug

- Capsule Suspension (CS)
- Suspension Concentrate (SC)
- Wettable Powder (WP)



ESB Future

- Uncertain
- In the intermountain west, populations seem to boom for a few years and then decline
- Same situation occurred in northern Italy and Germany
- Reason for decline is unknown
- Will they be cyclic, or be moderated by the environment?

