



  
UNIVERSITY OF  
**GEORGIA**  
EXTENSION



Edited by Dr. Carmen Blubaugh  
and Olivia Seabaugh

Cover art by Maisy Durkin and  
Russell Chesnut

# It's a Bug Eat Bug World

*A Kid's Guide to Pests and Predatory Insects in School Gardens*



Content for this guide was gathered by students in the University of Georgia's Outreach and Service-Learning in Entomology class (ENTO 4300), and features the most common insects you'll find in gardens throughout the Southeastern US. This year, we added a focus on "cucurbit" plants (like zucchini, which we planted in school gardens all over Athens, GA in 2022).

Names noted in each insect photo are credits to the photographers who graciously allowed us to use their work. If you want to assign first names to each of the insects featured in honor of the photographer, we enthusiastically support it. 😊

If you'd like to find more amazing bug images, here are some websites of outstanding photographers featured in this guide.

Joseph Berger: <https://www.insectimages.org/browse/autthumb.cfm?aut=14548>

David Cappaert: <http://davidcappaert.weebly.com/photography.html>

Whitney Cranshaw: <https://www.insectimages.org/browse/autthumb.cfm?aut=5062>

Colin Hutton: <https://www.colinhuttonphotography.com/>

Jena Johnson: <https://jenajohnson.zenfolio.com/>

Mike Quinn: <https://bugguide.net/user/view/4620>

Katja Schulz: <https://www.inaturalist.org/people/3785>

Tom Shahan: <http://thomasshahan.com/>

Salvador Vitanza: <https://elp.tamu.edu/ipm/bugs/>

Alex Wild: <https://www.alexanderwild.com/>

Insect Images: <https://www.insectimages.org/>

Bug Guide: <https://www.bugguide.org/>

# Table of Contents

*Team members who researched content for each page are noted in parentheses*

<b>Predatory Beetles</b>	1	<b>Other predatory insects (ants, flies, spiders, wasps)</b>	17
Pink-spotted lady beetle ( <i>Katie Hopwood</i> )	2	Ants ( <i>Sara O'Shields</i> )	18
Harlequin lady beetle ( <i>Angel Brooks</i> )	3	Lacewings ( <i>Avery Ryan</i> )	19
Convergent lady beetle ( <i>Carmen Blubaugh</i> )	4	Hoverflies ( <i>Carmen Blubaugh</i> )	20
7-Spotted lady beetle ( <i>Katie Hudson</i> )	5	Long-legged fly ( <i>Deja Keen</i> )	21
Dusky lady beetle ( <i>Briah Thompson-Carter</i> )	6	Caterpillar parasitoids ( <i>Carmen Blubaugh</i> )	22
Ground beetle ( <i>Carmen Blubaugh</i> )	7	Aphid parasitoids ( <i>Carmen Blubaugh</i> )	23
Tiger beetle ( <i>Joel Medina</i> )	8	Green lynx spider ( <i>Carmen Blubaugh</i> )	24
<b>Predatory Bugs</b>	9	Wolf Spider ( <i>Kalia Henry</i> )	25
Minute pirate bug ( <i>Angel Brooks</i> )	10	Jumping Spider ( <i>Christiana Huss</i> )	26
Big-eyed bug ( <i>Elly McGuire</i> )	11		
Stilt bug ( <i>Olivia Seabaugh</i> )	12		
Damsel bug ( <i>Deja Keen</i> )	13		
Spined soldier bug ( <i>Katie Hudson</i> )	14		
Pale green assassin bug ( <i>Russell Chesnut</i> )	15		
4-spurred assassin bug ( <i>Russell Chesnut</i> )	16		

# Table of Contents

*Team members who researched content for each page are noted in parentheses*

<b>'Generalist' Herbivores</b>	27	<b>Specialist Predators of Squash Pests</b>	41
Aphids ( <i>Carmen Blubaugh</i> )	28	Squash Bug Parasitoid Wasp	42
Whiteflies ( <i>Carmen Blubaugh</i> )	29	Squash Bug Parasitoid Fly	43
Fleahoppers ( <i>Carmen Blubaugh</i> )	30	<b>Fun classroom activities!</b>	44
Leafhoppers ( <i>Carmen Blubaugh</i> )	31	Bug YouTube video link	45
Leaf-footed Bug ( <i>Joel Medina</i> )	32	Make an insect food web	46
Green Stink Bug ( <i>Jon Golan</i> )	33	Bug Bingo	47
Spotted Cucumber Beetle ( <i>Olivia Seabaugh</i> )	34		
<b>Squash Specialist Herbivores</b>	35		
Squash bug ( <i>Christine Favorito</i> )	36		
Striped Cucumber Beetle ( <i>Briah Thompson-Carter</i> )	37		
Squash Beetle ( <i>Carmen Blubaugh</i> )	38		
Squash Vine Borer ( <i>Russell Chesnut</i> )	39		
Pickleworm ( <i>Logan Johnson</i> )	40		

# Predatory Beetles

Beetles have thick and hardened wings, called “elytra” and chewing mouthparts called “mandibles”



# PINK SPOTTED LADY BEETLE

*Coleomegilla maculata*



Mike Quinn

## What do they look like?

These are small beetles that are 6-7mm long and can be identified by their spots and triangular head. They are pink!

LARVA

PUPA

ADULT



Abigail Parker



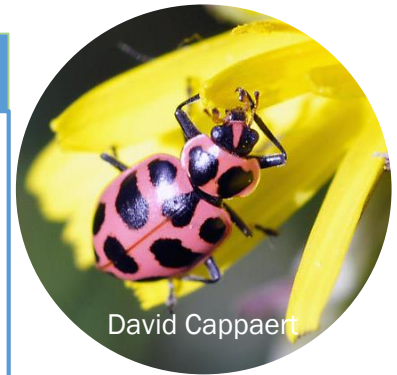
Sam Houston



David Cappaert

## What do they eat?

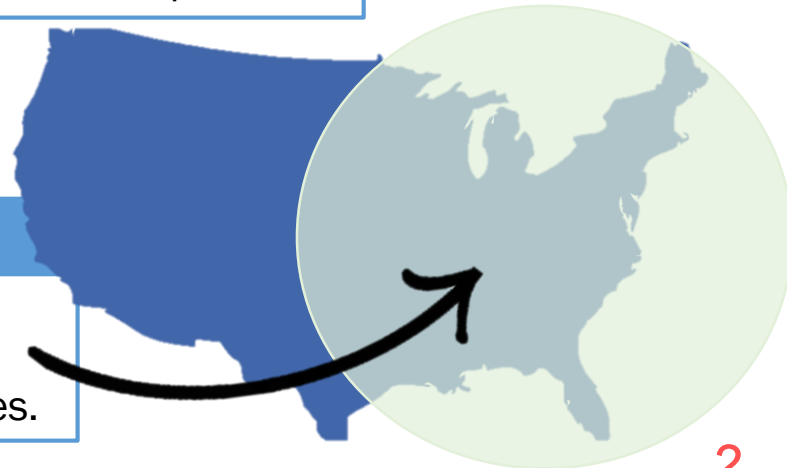
Both larvae and adults are predaceous and eat a variety of soft-bodied insects (aphids, caterpillars, beetle larvae). They also feed on nectar and pollen!



David Cappaert

## When can you find them?

Pink Spotted Lady Beetles are native to the Eastern United States, and found on a variety of plants. Buckwheat, sunflowers, and clover may attract pink spotted lady beetles.



# HARLEQUIN LADY BEETLE

*Harmonia axyridis*

## What do they look like?

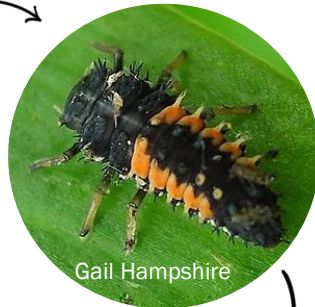
Harlequin lady beetles can vary in color and in their numbers of spots (0-21). They usually have white spots behind their heads.



## EGGS



## LARVA



## ADULT



## PUPA



## What do they eat?

Lady beetles eat smaller insects like aphids, eggs, and tiny larvae. Sometimes they will eat nectar or flower pollen too! Harlequin lady beetles often outcompete native lady beetles for food, and prey on native lady beetles.



## When can you find them?

Harlequin lady beetles are native to Asia, but are now one of the most common lady beetles in the United States. You might find them trying to come in your house in the fall as it gets colder!

# 7-SPOTTED LADY BEETLE

*Coccinella septempunctata*



## What do they look like?

7-Spotted lady beetles are 7-8 mm long. They are identified by having **precisely** seven spots on their back and white spots on either side of their heads that look like eyes!

## LARVA

## PUPA

## ADULT



Abigail Parker



Russ Ottens



David Cappaert

## What do they eat?

Lady beetles prey on smaller insects like aphids and scale insects. They can be 'cannibalistic' as well, and sometimes prey on other lady beetles. Sometimes they will eat nectar or flower pollen too!

## When can you find them?

Seven spotted lady beetles are native to **Europe**, but are established throughout the United States. You can find them on a variety of crops & flowering plants. Look for them if you find a big colony of aphids, their favorite food!



Giles San Martin

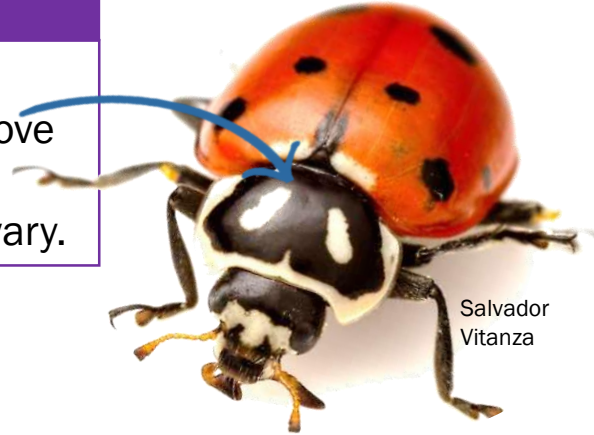


# CONVERVENT LADY BEETLE

## What do they look like?

Convergent lady beetles are 5-7 mm long, with **two white angular lines** above their heads. They often have twelve spots, but spots and coloration can vary.

## *Hippodamia convergens*

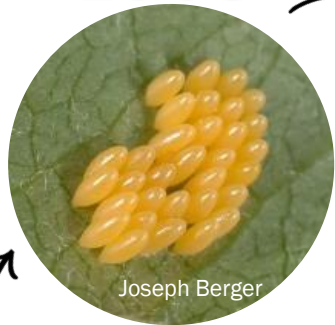


## What do they eat?

Like other lady beetles, they eat aphids and other soft-bodied insects, and occasionally feed on nectar and pollen from flowers.

## EGGS

## LARVA



## ADULT

## PUPA

## Where can you find them?

Convergent lady beetles are native to North America and widespread, although they are outcompeted in some areas by exotic lady beetles like the Harlequin and 7-spotted lady beetle. Look for them on any garden plant, and particularly around colonies of aphids!

**Fun fact:** In the Western US, Convergent lady beetles hibernate in giant clusters to keep warm up high in the mountains!



# DUSKY LADY BEETLE

*Nephus spp., Scymnus spp.*

## What do they look like?

These adorable lady beetles are round in shape, but **SO MUCH TINIER** than lady beetles you're used to seeing (about 2mm or the size of the tip of a crayon). They vary in color— many are black with red spots on their wings and/or head. Their body is covered with short tiny hairs. Larvae have fluffy white spikes and look like tiny sheep!



Size comparison with pink-spotted lady beetle!



## EGGS



Bradley Higbee

## LARVA



Alex Wild

## ADULT



Mike Quinn

## What do they eat?

These tiny beneficial insects are predaceous and prefer aphids!

- Aphids
- Mealybugs
- Scales
- Insect Eggs
- Pollen/Nectar

## When can you find them?

Dusky Lady Beetles are common in backyards, vegetable gardens, commercial farms, fruit orchards, and vineyards. If you are looking for them, try looking underneath leaves of plants where aphids may be.



Kim Starr



Mike Quinn

# Ground beetles

*Family Carabidae*



Anita Gould

## What do they look like?

Ground beetles come in various shapes and sizes. Most are shiny and brown or black.

## What do they eat?

Some ground beetles prey on soft-bodied insects like aphids, caterpillars, and eggs at the soil surface. Many are “omnivorous” and also eat weed seeds!



Francisco Welter-Schultes

## When can you find them?

Ground beetles are common throughout the United States. Most of them are nocturnal, so you might see them out hunting at night! Look for them under rocks in your garden, or set a “pitfall trap” to capture them, admire them, and release them! (bury a cup in the ground with the lip just below the soil surface!





Colin Hutton

# TIGER BEETLE

Family Carabidae

EGGS



Whitney Cranshaw

LARVAE



Whitney Cranshaw

ADULTS



Bruce Watt

## What do they look like?

Tiger Beetles are a *special* kind of ground beetle. They come in various shapes and sizes but have enormous eyes and incredible “mandibles.” (bug jaws!) Although many Tiger Beetles have vibrant colors, some species come in a dull black color.



Whitney Cranshaw

## Where can you find them?

They can be commonly found on sandy open surfaces and near water. They are mostly found out and about on sunny days!

## What do they eat?

- Ants
- Caterpillars
- Grasshopper Nymphs
- Even other beetles!



David Cappaert

**Fun fact:** Some species of tiger beetles hold the record for being the fastest-running insect, clocking in speeds at 5.6 MPH!

# Predatory “bugs”

**TRUE** bugs have piercing/sucking mouth parts (called “stylets”) that they use to stab other insects, liquefy their insides, and slurp them out like a straw!





# MINUTE PIRATE BUG

*Orius insidiosus*

## What do they look like?

Minute pirate bugs are TINY– only 3 mm LONG. They have black triangular heads, and white wing spots near the end, making them look a bit “checkered.” Nymphs are even tinier, and orange/yellow, with red eyes.

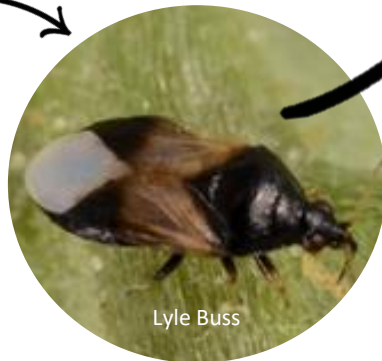


A minute pirate stabs whitefly nymphs!

## NYMPH



## ADULT



## What do they eat?

Minute pirate bugs are omnivores, meaning they eat both plants and insect pests! They feed on aphids, whiteflies, mites and eggs. They also love nectar and pollen, and suck juices from plants that are especially rich in nitrogen (like beans and clover), but usually eat insects whenever they are available.

## When can you find them?

Minute pirate bugs are **the most** common predatory insect you can find in a garden! They love to hang out on or inside flowers, and they are especially common on or near beans, clover, cilantro, and sweet alyssum, and calendula.





Mike Quinn

# BIG-EYED BUG (BEB ❤️)

*Geocoris spp.*

## What do they look like?

Big-eyed bugs are about 3-5 mm long, about a third of the length of a dime. They have a wide head, bulging **ADORABLE** eyes, and thick antennae, and adults have a cute little triangle on their backs.



## What do they eat?

Big-eyed bugs are omnivores that feed on eggs and soft-bodied pests, as well as on plants occasionally. They especially love nitrogen rich plants like beans and clover.

## EGG

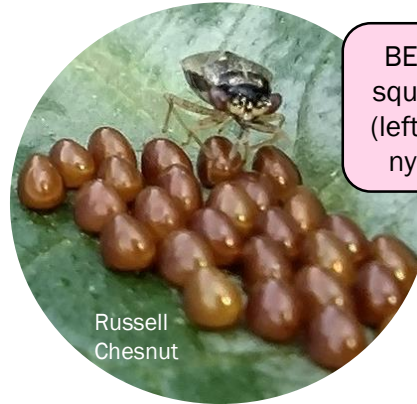


Ronald Smith

## NYMPH



Tom Murray



Russell Chesnut

BEB destroying squash bug eggs (left) and whitefly nymphs (right)



Jack Dykinga



Johnny Dell

## ADULT

## Where can you find them?

Big-eyed bugs can be found throughout North America, and are one of the most common predatory insects you can find in a garden!



# STILT BUG



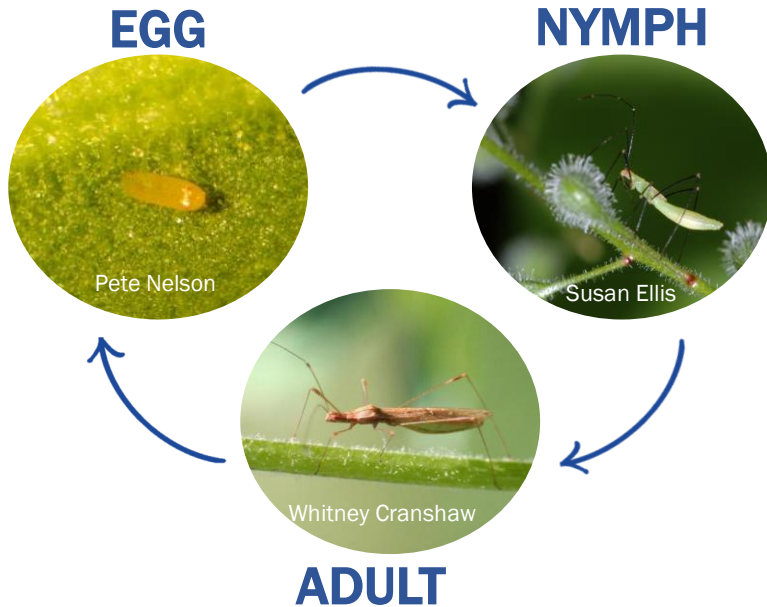
Family *Berytidae*

## What do they look like?

Stilt bugs are brown with very long legs – like stilts! They are about half of the length of a penny (7mm-9mm)! They have cute ‘clubbed’ antennae with little balls on the ends!

## What do they eat?

- Plant juices
- Dead insects
- Caterpillar eggs
- Aphids



## Where can you find them?

Stilt bugs can be found from Mexico to Canada. They have long legs that enable them to walk on plant “trichomes” (tiny plant hairs that make sticky sap!), and they often eat the dead and dying insects that get stuck on “sticky” plants. So they are especially common on “hairy” plants like tomatoes and eggplants.



# DAMSEL BUG

*Nabis spp.*



## What does it look like?

Measuring in at just 4-13 mm (just about the width of a battery), these bugs are certainly not damsels in distress! Damsel bugs have piercing/sucking mouthparts that they use to impale prey! Usually brown or gray, damsel bugs are slender bodied with long legs and antennae.



John French



## What do they eat?

Damsel bugs eat a wide variety of herbivores such as aphids, caterpillars, eggs, and beetles. When feeding, they will hold onto their prey with their “raptorial forearms” like preying mantids! They use sword like mouthparts to stab prey, liquefy their insides, and slurp them out like a straw! They occasionally feed on plant sap too.

EGG



NYMPH



ADULT

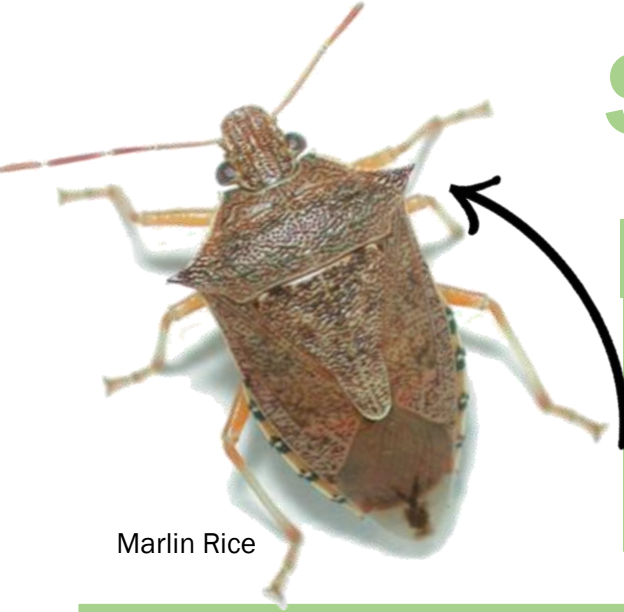


## Where can you find them?

Damsel bugs can be found throughout North America, and thrive on a variety of crops and garden plants. They are more common on or near “legumes” like beans, clover and alfalfa.

# SPINED SOLDIER BUG

*Podisus maculiventris*



Marlin Rice

## What does it look like?

This is a predatory stink bug with a dull brown color, but it is different from other stink bugs because of its **TWO BIG SPIKES** on the sides of its back behind its head. Adult males are 11mm long and females are a little longer.

## What do they eat?

Spined soldier bugs are voracious predators and eat a variety of insects, especially soft-bodied moth/butterfly and beetle larvae. When prey are scarce, they will sometimes feed on plant juices.

## EGGS



Bill Kleim

## NYMPH



Russ Ottens

## ADULT



Leslie Abram

## Where can you find them?

Spined soldier bugs are found throughout North America. It has also been brought by people to other parts of the world because it's so good at eating bad pests on food crops! They can be found on most garden plants, but they're not as common as other predatory bugs (Minute pirate bugs, big-eyed bugs, and damsel bugs).

# PALE GREEN ASSASSIN BUG

*Zelus Luridus*



Salvador Vitanza

## What are they?

Pale Green Assassin Bugs can be distinguished by their green color. Males are usually darker than females. Adult males are about 14mm in length. Females are larger, measuring about 15.5mm.

**Fun fact:** Tiny, newly-hatched 'nymphs' cover their legs with a sticky substance that surrounds their eggs to keep from blowing away!

## Where can you find them?

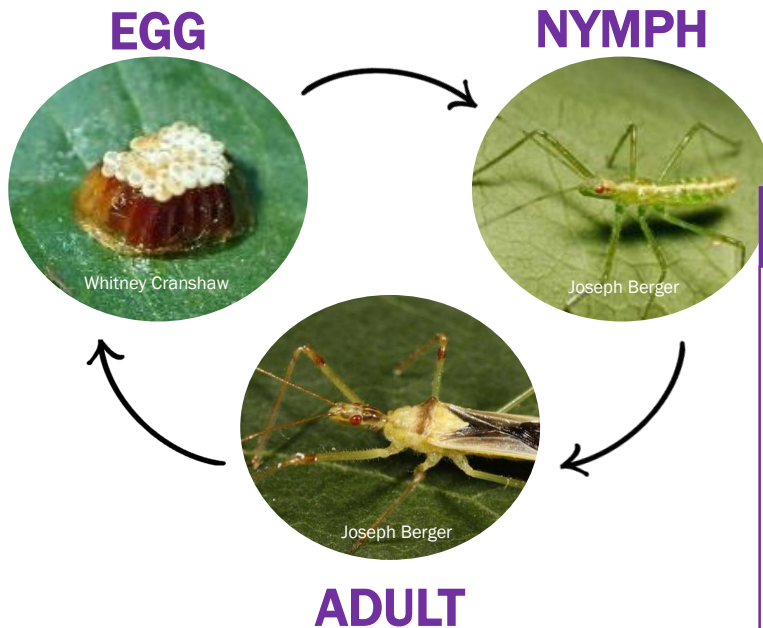
Pale Green Assassin Bugs are found mostly in North America, with some populations extending to Central America.

## What do they eat?

Assassin bugs are found on a variety of plants and eat a variety of smaller insects. As "sit-and-wait" predators, assassin bugs wait patiently until unsuspecting victims get within jumping range, then attack and inject venom in their prey!



Joseph Berger

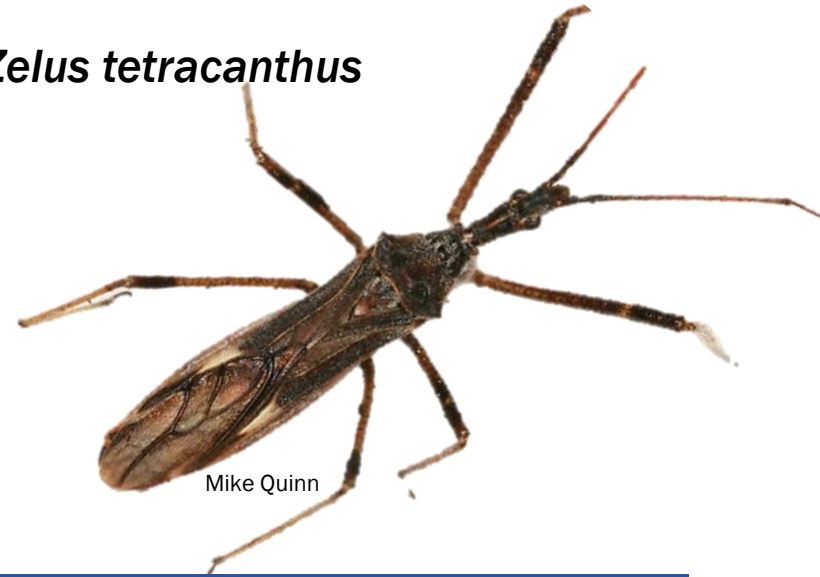


# 4-SPURRED ASSASSIN BUG

## What do they look like?

The mature insects are grayish-brown to brownish-black, with females usually being darker in color. All adults have yellowish stripes on their legs and underside. Four spines can be seen on the bug's thorax, which make the insect look like it has shoulders. Males are about 12.5 mm in length while females are larger, measuring 14.5 mm.

## *Zelus tetracanthus*



Mike Quinn

## What do they eat?

Assassin bugs can be found on a large variety of plants and eat a diverse selection of smaller insects as prey.

## Where can you find them?

Four-Spurred Assassin Bugs are a type of true bug (meaning it has piercing/sucking mouthparts!) found in North America, Central America and a few countries in South America. Adults are most commonly found from June to August.

## EGG



J. Wessels

## NYMPH



Libby Avis

## ADULT



Whitney Cranshaw

# Other predatory insects

**Spiders, flies, lacewings, and parasitoid wasps eat other insects too!**



# ANTS

Family Formicidae

## What do they look like?

Ants have a distinct head, thorax and abdomen, but they vary in size and color. Most of the ants we see in gardens in the Southeast are either invasive Argentine ants, native odorous house ants (which are both tiny and look similar), or red imported fire ants. They range from 2-5 mm (about the size of a pencil eraser!).

### Argentine ant



### Red imported fire ant



## Where can you find them?

Ants are some of the most common insects we see in raised beds, and you can find them marching around on the leaves and stems of almost any plant. You might find more of them on plants with aphid colonies!



## What do they eat?

Fire ants are omnivores (they can eat both animals and plants), but they mostly feed on other insects. They also **drink aphid pee!** (Aphids make a sugary liquid called “honeydew”) You can find ants patrolling plants and guarding their “flocks” of aphids and their favorite food.

You'll want to avoid fire ants because of their **terrible sting**, but most ants in the garden are harmless! Fire ants have **two little bumps** on their waists, while most ants have one hump or none. They are a little more red in color, and move slower than most of the other ants you'll find on garden plants.

# Lacewings

Order: Neuroptera



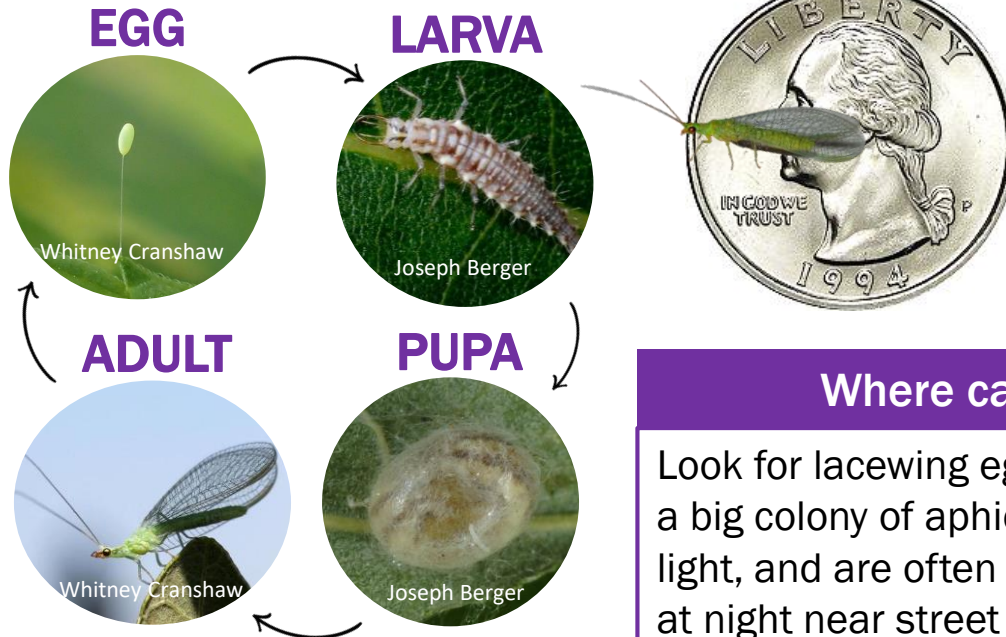
## What do they look like?

As adults, lacewings look like beautiful green aliens as adults. They are about half the size of a quarter and have green lacey wings, huge shining eyes, and long antennae. As tiny larvae, they have soft bodies and hook-like jaws that are longer than their heads! They lay their eggs on top of tall stalks to protect their babies from predators, and their pupae look like shining little pearls.



## What do they eat?

Lacewing larvae are fierce predators of aphids and other soft-bodied insects, as well as insect eggs. They impale their prey with their sharp jaws and hold them above their heads, letting their body juices drop into their mouths! Adults rely on nectar for energy, and love basil and other flowering plants!



## Where can you find them?

Look for lacewing eggs and larvae when you see a big colony of aphids! Adults are attracted to light, and are often found fluttering awkwardly at night near street lights or porch lights.



# Hoverflies

*Family Syrphidae*

## What do they look like?

Hoverfly adults dress up like **BEES!** But they only have two wings. As larvae, they vary in color from green to brown, and can be easily confused for caterpillars, but hoverfly larvae don't have real legs like caterpillars. Their eggs look like a tiny grain of rice!



Whitney Cranshaw



Merle Shepard

## What do they eat?

Adult hoverflies eat nectar and pollen, and are important pollinators! Larvae are voracious predators of aphids, and somehow eat them without real mouthparts or real legs! They're like aphid vacuums.



Sweet Alyssum

## When can you find them?

Look for hoverfly larvae near colonies of aphids! Look for adults among blooming flowers. Flowers that are known to attract them include sweet alyssum, buckwheat, and phacelia.



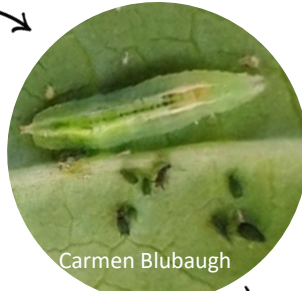
Phacelia

### EGG



Whitney Cranshaw

### LARVA



Carmen Blubaugh

### PUPA



David Cappaert

### ADULT



David Cappaert



# LONG-LEGGED FLY

Family *Dolichopodidae*

## What do they look like?

Long-legged flies are simply fabulous. They are neon metallic green, blue, red, copper, or gold! They also have long long and slender legs, that make them seem like they are up on stilts!. These flies are TINY and only around 4-9 mm long! That's a little less than the size of a pea!



## ADULT



Killed bug!

## What do they eat?

These tiny flies are predators that love to snack on smaller arthropods like flies, aphids, or mites. That is why they are great for pest control!

Fun fact: Male long-legged flies perform crazy mating dances including squats, waving, butt wiggles, and airborne gymnastics!

## LARVA



## Where can you find them?

Larvae are difficult to find because they develop in moist soil. However, adults are easy to see on foliage in gardens and are active during morning and late afternoon. They are incredibly quick fliers though, and difficult to catch!

# PARASITOID WASPS OF CATERPILLARS



Jena Johnson

## What do they look like?

Like aphid parasitoids, these wasps are black and **TINY** (about 3 mm). Their cocoons look like fuzzy little white or yellow tic-tacs!



Chris Phillips



David Cappaert

Some parasitoids spin cocoons in a cluster beneath the dead body of the caterpillar and use it as a shield!

Some parasitoids spin their cocoons right on the caterpillar's back.



David Cappaert



Alex Wild



Kimberlie Sasan

## What do they eat?

Parasitoid adults sting caterpillars, and then lay their eggs inside. When larvae hatch, they feed inside their caterpillar hosts until it dies. When they emerge as adults they drink nectar for energy.

## Where can you find them?

Parasitoid wasps attack almost every type of caterpillar, and if you look closely late in the summer, you might be able to find them pupating on or under sluggish-looking caterpillars.

# PARASITOID WASPS OF APHIDS

## What do they look like?

Aphid parasitoid wasps are identified by their slender, black or brown body with pinched “wasp waist.” They are **TINY!** Only 3 mm long. They are way smaller than a dime, and much too tiny to sting you!



## OVIPOSITION



## LARVAE



“Oviposition” happens when an insect lays its eggs. Parasitoids “oviposit” inside other insects and then pupate inside the dead bodies of their victims.

## What do they eat?

Aphid parasitoid wasps specialize on aphids (little bugs that suck the juices out of garden plants!) As adults, parasitoids rely on nectar blooming from plants like dill, parsley, mustards, and white clover.



## ADULT



## PUPA/ MUMMY

## Where can you find them?

Aphid parasitoid wasps are active during the day and can be found on a variety garden plants. The easiest way to find them is to search among aphid colonies for crispy brown “mummies” (aphids killed by parasitoids).

# GREEN LYNX SPIDER

*Peucetia viridans*

## What do they look like?

Green lynx spiders are bright green with yellowish hairy legs, and white/grey chevrons on their abdomen. They have a unique “hexagonal” eye arrangement.



## EGG SAC



## SPIDERLINGS



## ADULT

## What do they eat?

Lynx spiders are **ambush** predators, meaning they quietly stalk running/flying prey (like the cucumber beetle above!), and then attack!

## Where can you find them?

Green Lynx spiders can be found in the **Southern US**. They camouflage themselves on almost any green plants in the garden, so look for them hiding under leaves!



# WOLF SPIDER *Family Lycosidae*



## What do they look like?

Most wolf spiders are quite small, but they can get even bigger than 6 cm long ! (that's as big as a tennis ball!) They are brown and hairy and many have a stripe on their head and chevrons on their abdomen. They can be easily identified by unique eye-arrangement that makes them look a little sad!

## What do they eat?

Even the largest wolf spiders are harmless to humans. Wolf spiders are nocturnal and hunt like wolves at night– they actively run and chase insect prey at the soil surface.

Wolf spiders are awesome moms. They attach egg sacs to their abdomens, and when the babies hatch, they carry them on their backs until the babies are ready to survive on their own!

## Where can you find them?

Wolf spiders are nocturnal, and you can find them at night running around the surface of the soil. Try shining a flashlight into grass and you can see their huge adorable eyes glowing!

### EGG SAC



### SPIDERLINGS



### ADULT

# JUMPING SPIDER

Family Salticidae



Colin Hutton

## What do they look like?

Jumping spiders are easily the most adorable of all the predators-- They have the saddest faces and silliest hairstyles! You can identify them by their unique eye arrangement. They are generally less than 1 cm, come in a variety of colors, and most have hair on their legs and bodies.

## What do they eat?

Jumping spiders sit and pursue prey, and then jump on them when they're least suspecting! (Of course, they would not be anxious to jump on humans-- we're much too large!)



Tom Shahan



Colin Hutton

## Where can you find them?

Jumping spiders can be found in garden foliage, hunting during the day. Some of them create little silk nests to hide in and protect their eggs!



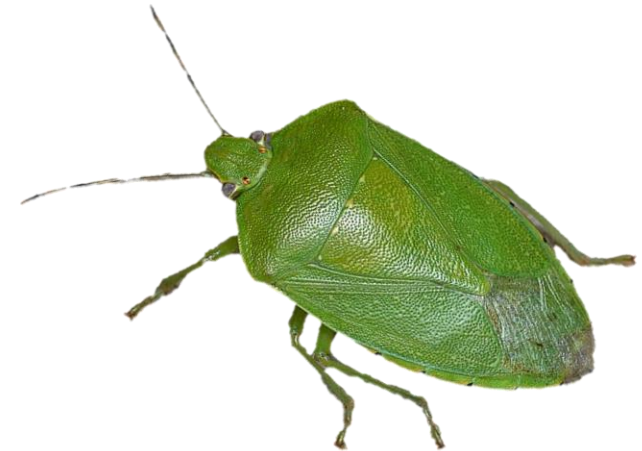
Joseph Berger



Katja Schulz

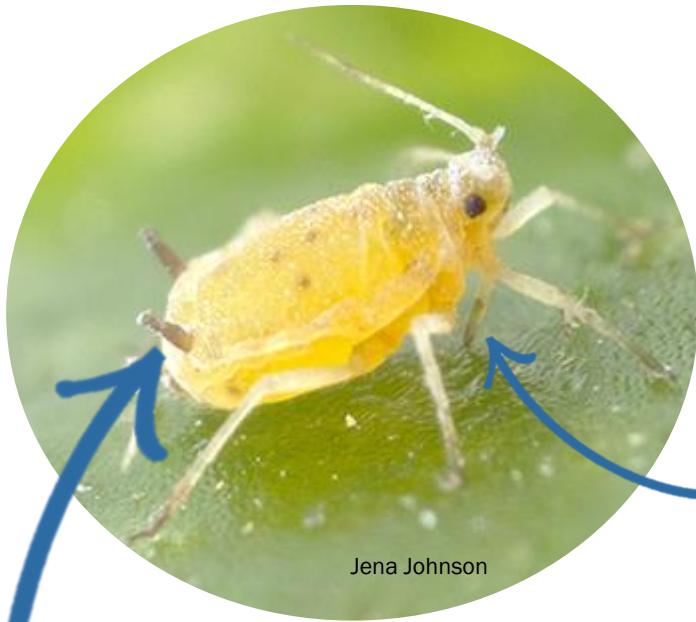
# “Generalist” Herbivores

These insects feed exclusively on plants, and can be found on many kinds of garden plants



# APHIDS

Family Aphididae



Jena Johnson

## What do they eat?

Aphids feed on a wide variety of plants! They suck sugary juices from plants with **tiny straw-like mouthparts**.



Shipher Wu

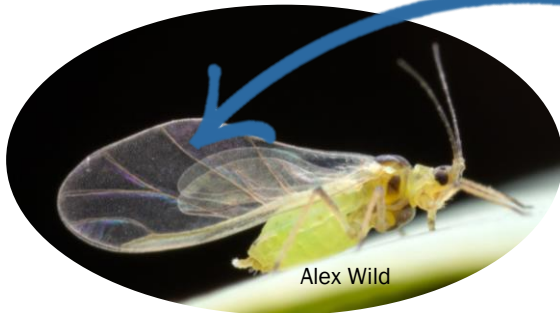
## What do they look like?

Aphids are quite tiny! (between 1-2 mm). These squishy little bugs have piercing/sucking mouthparts, long antennae, and **two cute little "horns" on their butts** called "**cornicles**." They come in a variety of colors-- from ashy white, to green, pink, yellow, and even black!

**Fun fact:** Aphids rarely lay eggs. Instead, they give live-birth to their babies, just like your mom did with you! Unlike your mom, aphids generally make all-female clones of themselves, and each new daughter is born with another aphid baby already inside her!

## Where can you find them?

Aphids are one of the most common insects you can find in gardens. Look for aphids on the undersides of plant leaves. Sometimes when colonies get large, you can see their shiny & sticky poop, called "**honeydew**" on the leaves below.



Alex Wild

**Fun fact:** Most aphids never grow wings, but when colonies get large, a few sprout wings so they can fly off to invade a new plant!






# FLEAHOPPER

*Halictus spp.*

## What do they look like?

Fleahoppers are tiny bugs (just 2 mm long!) that look like fleabeetles. Which sort of look like fleas. Fleas, fleabeetles and fleahoppers all have large jumping hind legs like bunnies! But fleahoppers are bugs, not beetles. Got it? 😓 Unlike fleas and fleabeetles, fleahoppers have long antennae and are green as nymphs.

Fleahopper =  Fleabeetle =  Flea = 

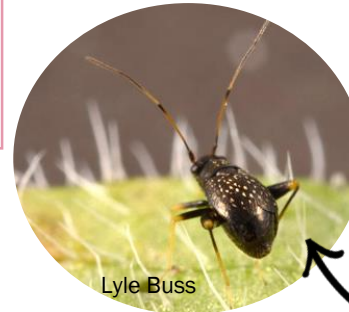
## When can you find them?

Fleahoppers are common on the leaves of most garden plants and are active during the day. If you poke them, they might leap away, but won't get very far-- they're only moderately good jumpers.

## NYMPH



## ADULT FEMALE



## ADULT MALE



## What do they eat?

Fleahoppers use piercing/sucking mouth parts to drink the juices of many garden plants.

Female fleahoppers generally have stubby little wings and can't fly, while males have longer wings and **can** fly! Unfair.

# WHITEFLIES

Family *Aleyrodidae*



Charley Eiseman



Whitney Cranshaw

## What does it look like?

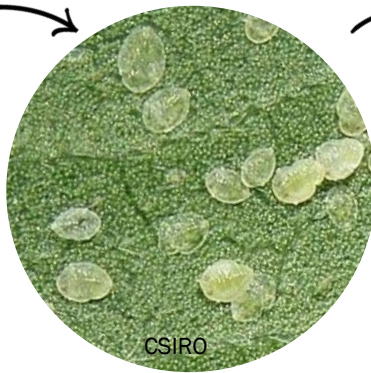
Whiteflies are tiny, (1.5-3mm). Most have white or yellowish heads, and cute white wings that they hold in a heart shape on their backs! Eggs are laid in an adorable “fairy ring”, and immature nymphs look like tiny pancakes!

## EGGS



Emily Shelby

## NYMPHS



CSIRO

## ADULT



Alex Wild

## What do they eat?

Whiteflies pierce plants and suck out their juices. They can become quite a situation on large farms, but are not often problems in gardens.

## When can you find them?

Whiteflies eat a variety of plants. Look under leaves for tiny white hearts. <3 They are also quite common on houseplants and in greenhouses.

**Fun fact:** Sometimes whiteflies can infect plants with viruses!

# LEAF/PLANTHOPPERS

## What do they look like?

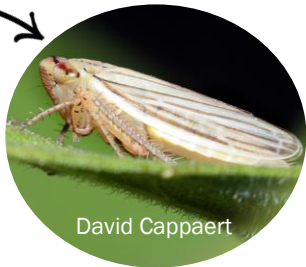
Leafhoppers & planthoppers can vary in size, from 30-125 cm. They also vary in color- some have vibrant stripes, while others range from green, brown, yellow or white. Leafhoppers have flat rounded heads, and hold their wings over their body like a tent. Some immature “nymphs” are tiny and green, while others are fluffy like tiny cotton balls!

*Family Cicadellidae, Flatidae, Cercopidae*



NYMPH

ADULT



## What do they eat?

Leafhoppers suck juices from a variety of plants.

## Where can you find them?

Leafhoppers are commonly found on most garden plants, but their eggs are difficult to find because they cut tiny slits in plants and lay their eggs inside!

This planthopper is disguised as a leaf!





# LEAF-FOOTED BUG

*Leptoglossus spp.*

## What do they look like?

Leaf-footed bugs are larger bugs - around  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch long as adults. They get their name from the way their chonky hind legs are shaped. They look like tiny leaves! They also lay their eggs in a tidy straight line.

## What do they eat?

Leaf-footed bugs suck plant juices out of soft fruits and vegetables such as tomatoes and pomegranates. They also LOVE blooming sunflowers!

## EGG



## NYMPH



## ADULT

Leaf-footed bug  
(pest!)



Assassin bug  
(predator!)



Leaf-footed bug nymphs (left) can easily be confused with assassin bugs (right). Can you spot any differences between the two?

## Where can you find them?

Leaf-footed bugs are commonly found in gardens and farms where fruits and vegetables are commonly grown. During the winter they like to remain under debris and in the spring move onto trees and shrubs.

# GREEN STINK BUG *Chinavia halaris*



Ryan Hodnett

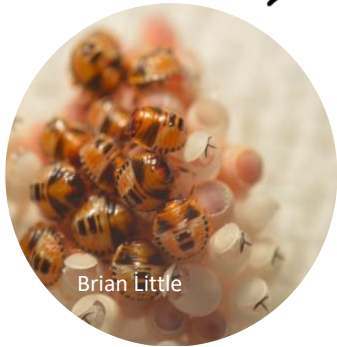
## What does it look like?

Green stink bugs are green, shield-shaped, and dime-sized bugs. Some green stink bugs are bright orange, but they are rare!



Kamminga

## EGGS



Brian Little

## NYMPH



Russ Ottens

## ADULT



David Cappaert

## What do they eat?

Green stink bugs are herbivores, which means that they love eating plants. – they will eat pretty much any plant they can find!

## Where can you find them?

Green stink bugs can be found in most of the United States and in Canada along the border with the U.S. You'll see them on warm days from June through August! They can't bite you, but if you hold them long enough, they'll show you why we call them "stink" bugs.

# SPOTTED CUCUMBER BEETLE

*Diabrotica undecimpunctata*

## What do they look like?

Very small yellow beetles with 12 black spots. They are only 1/4 inch long. You can fit 4 of them on a single paperclip!



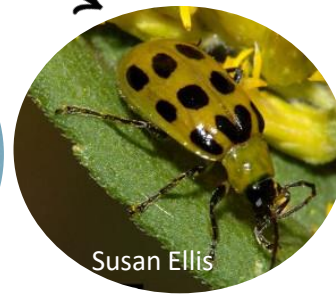
## EGGS



## LARVAE



## ADULTS



## What do they eat?

Spotted cucumber beetles commonly eat squash and cucumber plants, but they can also feed on a wide range of other plants too. We call them “generalists” for that reason. In fact, they’re also known as the “Southern Corn Rootworm,” because the larvae live belowground and feed on plant roots! (and they happen to be one of the world’s worst pests of corn as well!)

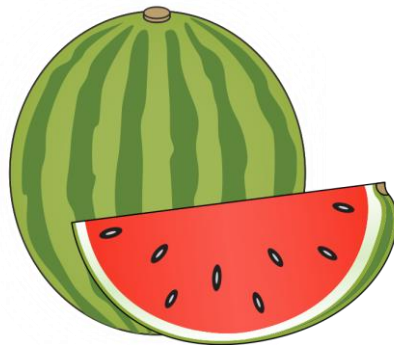
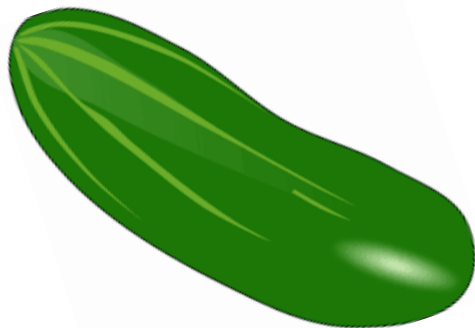
## Where can you find them?

They can be found all over North America. They are common to see on garden foliage, but larvae and eggs are rarely found, as they develop belowground.

# Specialist\* pests of “cucurbits”

(& their natural enemies!)

(\*bugs that specialize on cucumbers,  
squash, and melon plants)



# Squash bug

*Anasa tristis*

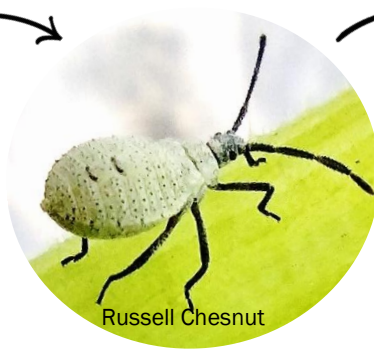
## What does it look like?

Squash bugs are 1.5 cm long (about the size of a dime). They are grey/black with orange and brown stripes along their backs. Immature “nymphs” are ashy grey, and eggs are golden brown and laid in clusters on the undersides of squash leaves.

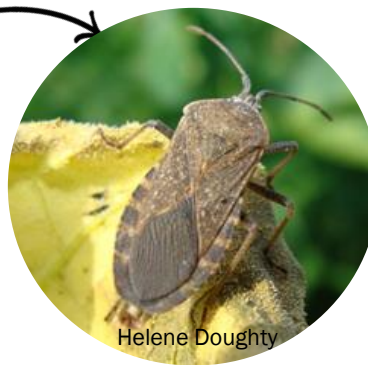
## EGGS



## NYMPH



## ADULT



## What do they eat?

Squash bugs use needle-like mouthparts to pierce squash plants and suck plant juices out like a straw!

## Where can you find them?

Squash bugs are the most common pests of summer squash and pumpkins. Look on the undersides of leaves!

Freshly hatched babies!





# STRIPED CUCUMBER BEETLE

*Acalymma vittatum*



Photo John Maxwell

## What does it look like?

They are very small yellow beetles with 3 black longitudinal stripes! They are only 7mm long – smaller than a pea!



Whitney Cranshaw

LARVAE

ADULT



Whitney Cranshaw



John Capinera

## What do they eat?

As their name suggests, Striped Cucumber Beetles specialize on eating leaves and flowers of plants in the cucumber family, like squash and melons.

## When can you find them?

Striped cucumber beetles can be found from Mexico to Canada. Eggs are laid at the soil surface, and larvae feed on the roots and stems of “cucurbit” plants (cucumbers, melons, squash, and pumpkins!)

**Fun fact:** Striped cucumber beetles use the scent of squash and cucumber flowers to gather and find mates!



Howard Schwartz

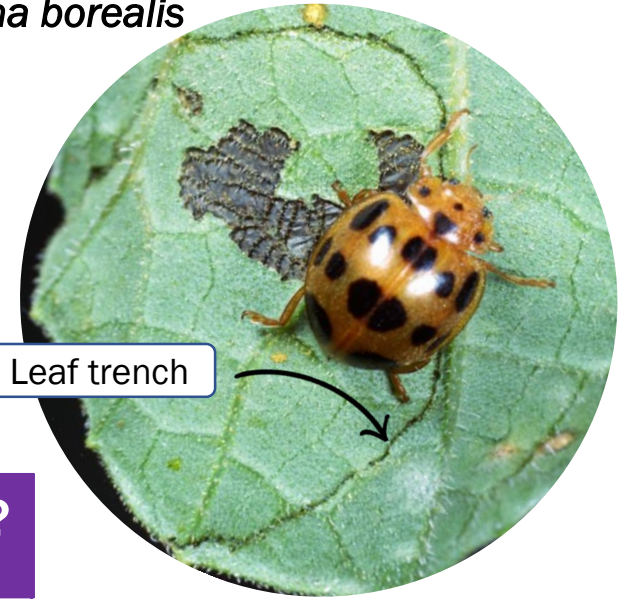
# SQUASH BEETLE

*Epilachna borealis*

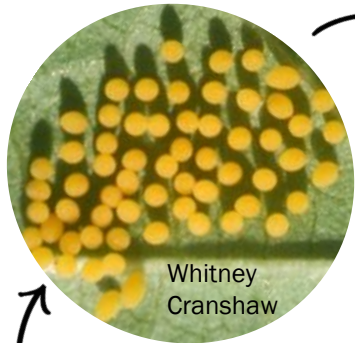
## What do they look like?

Squash beetles look a lot like lady beetles. In fact, they're in the same family! But they are larger, with larger spots. Their larvae look like little yellow pin cushions!

Leaf trench

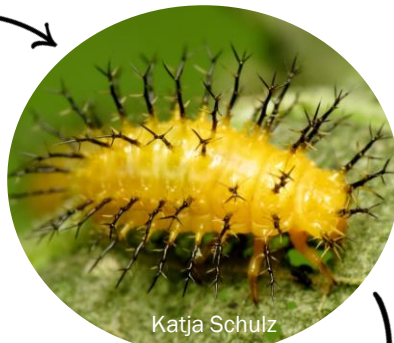


## EGGS



Whitney  
Cranshaw

## LARVA



Katja Schulz

## ADULT



Sharon Moorman

## PUPA



David Cappaert

## What do they eat?

Although they look like lady beetles (which are predators), squash beetles are strict vegetarians. Squash beetles eat plants in the cucumber family.

**Fun Fact:** Squash beetles cut “trenches” in leaves before having their dinner. They do this to cut off the leaf veins and avoid spicy chemical defenses produced by the cucumber plants in response to their attack!

## Where can you find them?

Squash beetles are common on squash, cucumbers, and melons and are restricted to the Eastern US.



# SQUASH VINE BORER

*Melittia cucurbitae*



Ansel Oomen

## What do they eat?

Larvae chew their way in and eat the inner tissue of the stems on summer squash and pumpkins.

## Where can you find them?

Squash vine borers are common in the eastern half of the United States. If you see a squash plant looking a bit sad and droopy, check the base of the stem and look for a hole with clumps of yellow poo that the caterpillars leave behind! You can slice open the stem to find the larva and get your revenge.

## What do they look like?

Squash Vine Borers are fairly large – about 16 mm long. They have fabulous costumes, with pretty green/black iridescent wings, and their abdomen is covered in orange or reddish hairs with a line of black dots down their back. Their legs are covered in black and red hairs, so it sort of looks like they're wearing pants!

**EGG**



Alan Eaton

**LARVA**

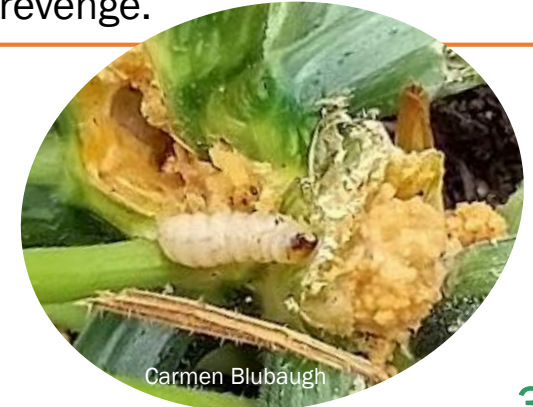


Brantlee Richter



Matthew Willis

**ADULT**



Carmen Blubaugh

# PICKLEWORM *Diaphania nitidalis*

## What do they look like?

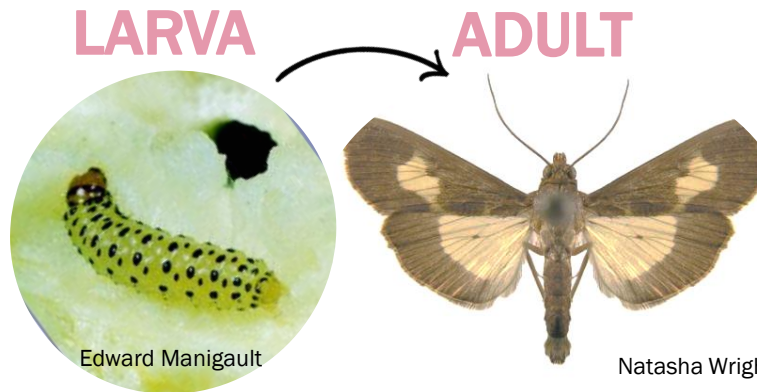
Pickleworms lay tiny eggs on flowers, then tiny larvae hatch and burrow inside. The caterpillars start out white/green, and develop spots with age. Once they pupate, they emerge and adults have brown wings with white blotches! Females have a fancy “butt pompom” that they use to release odors that attract male pickleworm moths!



Jonathan Willey

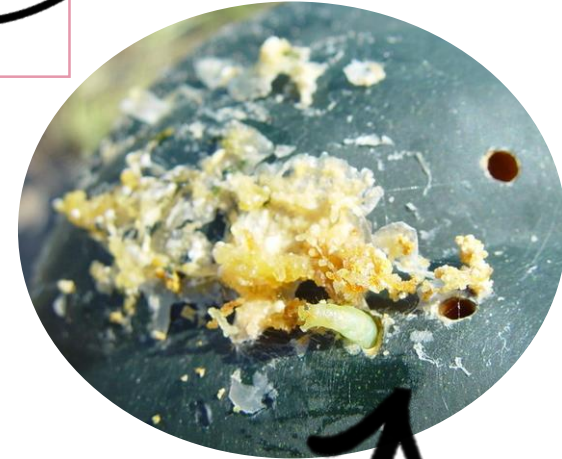
## What do they eat?

Pickleworms go for the fruits of cucumbers, squash, and melons! Jerks.



Edward Manigault

Natasha Wright



## Where can you find them?

Pickleworms die in freezing weather, so they're restricted to the southern United States. They migrate north from Florida and arrive in Georgia and the Carolinas in July each year! Pickleworms are easy to find because you can see their icky poop sculptures outside their chew holes on squash and cucumbers.



# Specialist Predators of Squash Pests

(Bugs that eat herbivores that specialize  
on eating on “cucurbit” plants)



# SQUASH BUG PARASITOID FLY

*Trichopoda pennipes*

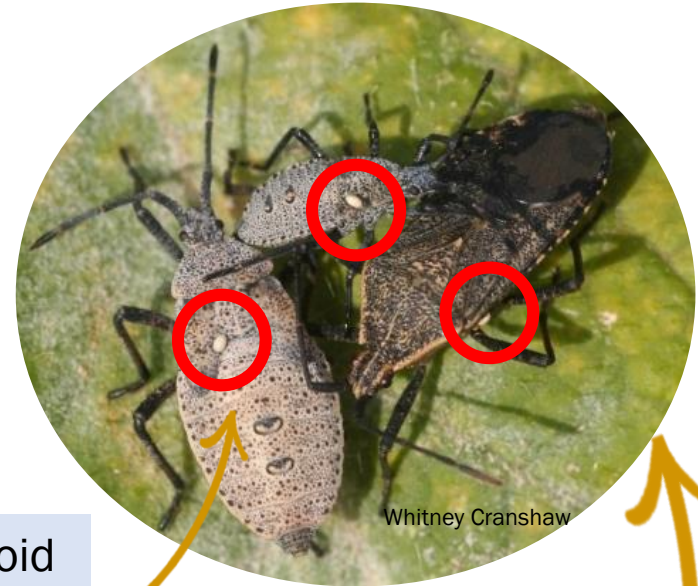


## Where can you find them?

Look for them buzzing around squash plantings!

## What do they look like?

Squash bug parasitoid flies are the most cute. They are about the same size as a housefly, but have two magnificent black velvety wings, and bright orange butt! They also have fancy “brushes” on their hind legs.



Parasitoid fly eggs!

## What do they eat?

These flies are “parasitoids” meaning they feed on a single animal during their immature “maggot” stages– either squash bugs or stink bugs! They lay little white oval eggs on squash bugs, then the larvae hatch and slowly eat the bug from the inside out!

# SQUASH BUG PARASITOID WASP

## What does it look like?

These wasps are tiny! (about the size of the tip of a ballpoint pen— 1.5 mm), but they're still very important! They have black bodies, elbowed antennae, and cute little hunched backs.



Sean Boyle



John  
Rosenfeld



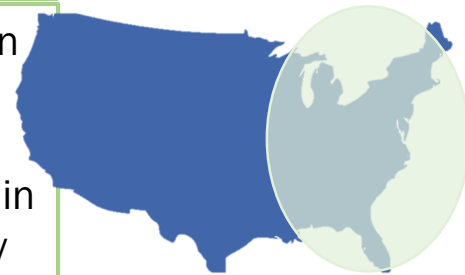
Charley Eismann

## What do they eat?

Adults “sting” squash bug eggs and lay eggs. (These wasps are FAR too tiny to sting a human!). The tiny wasp larvae eat the baby squash bugs before they ever hatch from their eggs. Adults feed on nectar and pollen from blooming plants.

## Where can you find them?

They common in the Eastern US, and can often be found snooping around squash bug egg clutches. Try cutting squash bug egg clutches from squash leaves after July, and store them in a clear container. Wait and see how many tiny wasps emerge after a week or two!



# **Fun class activities with bugs in the garden**



# Bug2School YouTube channel

[Click here for a collection of amazing videos about common pests and beneficial insects created by students in UGA's Entomology Service-Learning Class! \(ENTO 4300\)](#)

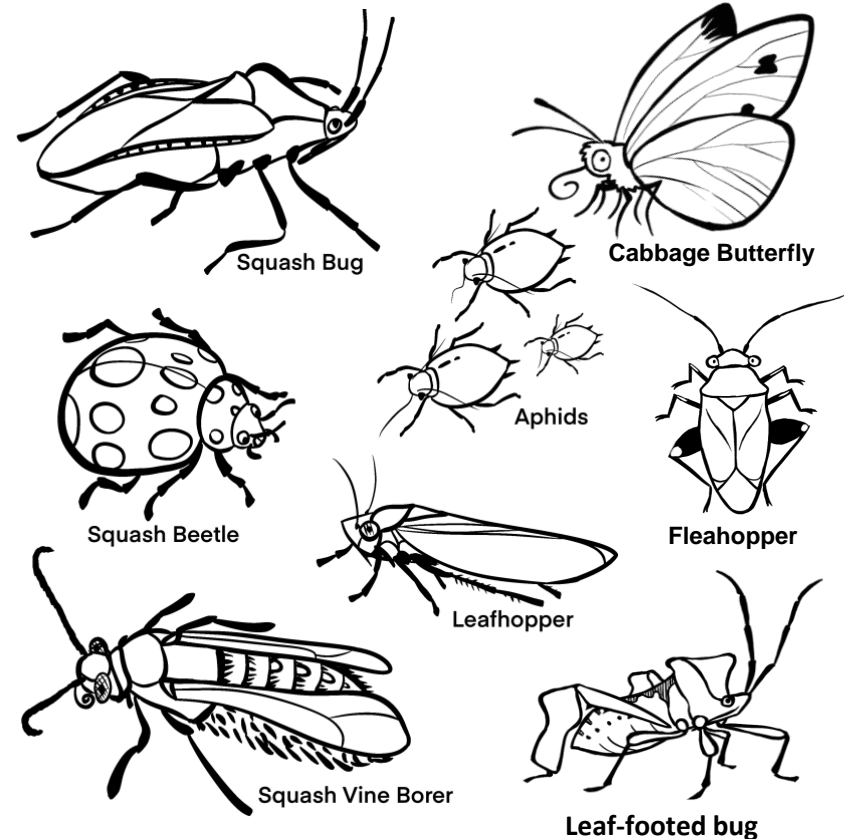
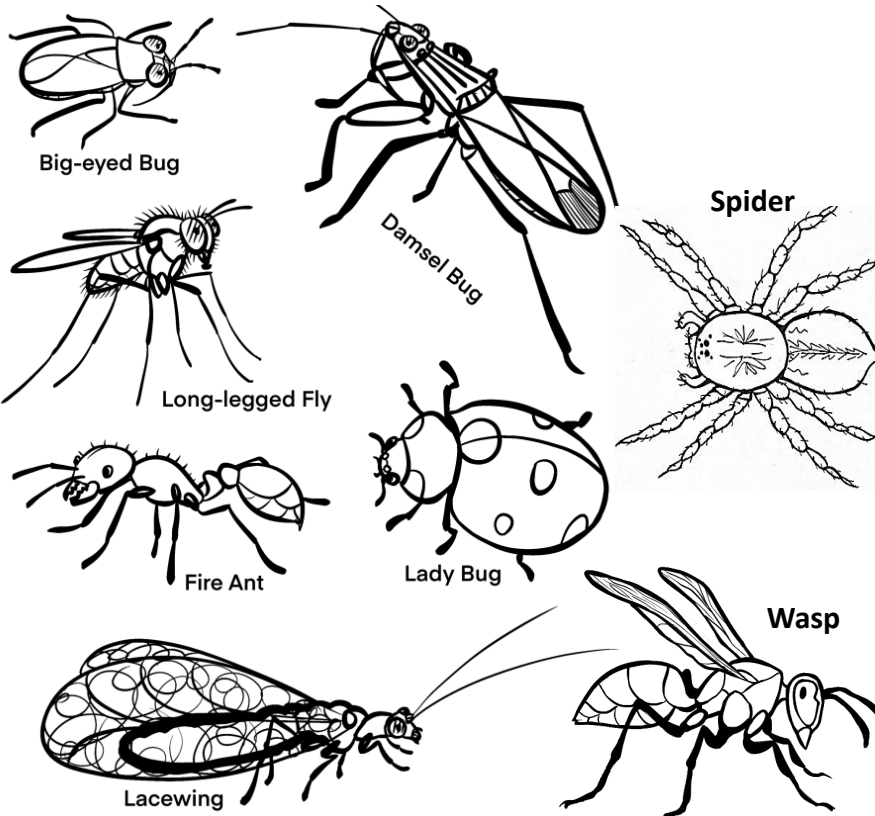


Cut out these images and construct a **garden food web** by drawing arrows between predators and prey!

Images drawn by Maisy Durkin, Russell Chesnut, and Sophia Magarelli

# Predators

# Pests

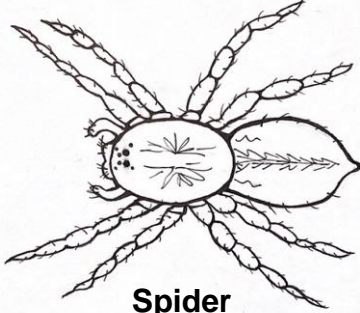

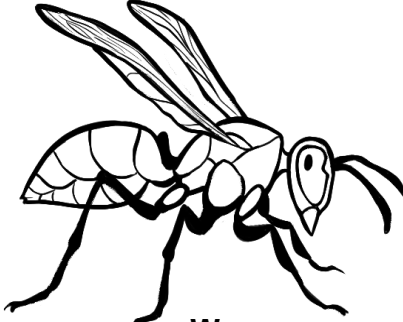
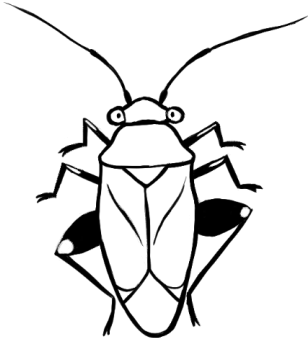
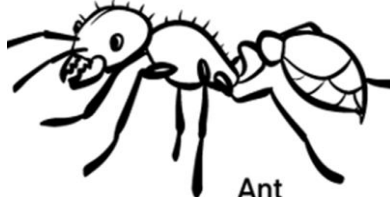





# BUG BINGO

A fun scavenger hunt bingo activity! Have students mark a space if they find one of the following bugs on plants in the garden.

Adapt it to your most abundant resident bug community by pasting in any of the other images from the previous page!

*Images drawn by Sophia Magarelli, Russell Chesnut, and Maisy Durkin.*

 <p>Spider</p>	 <p>Leafhopper</p>	 <p>Wasp</p>
 <p>Fleahopper</p>	<p><b>FREE SPACE</b></p> <p>FOUND AN EXTRA COOL BUG NOT ON THE BOARD</p>	 <p>Ant</p>
 <p>Cabbage butterfly</p>	 <p>Bumblebee</p>	 <p>Long-legged Fly</p>