

A Stink Bug *Euschistus quadrator* Rolston (Insecta: Hemiptera: Pentatomidae)¹

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Introduction

Euschistus quadrator Rolston was described in 1974, with specimens from Mexico, Texas, and Louisiana. *Euschistus quadrator* was not found in Florida until 1992. It has since spread throughout the state as well as becoming an agricultural pest of many fruit, vegetable, and nut crops in the southeastern United States. It has a wide host range, but is most commonly found in cotton, soybean and corn. *Euschistus quadrator* has recently become a more prominent pest with the introduction of crops such as Bt cotton and an increase in the usage of biorational or reduced-risk pesticides.

Distribution

Euschistus quadrator is originally from Texas and Mexico, and has since been reported in Louisiana, Georgia, and Florida.

Description

Adults

The adults are shield-shaped and light to dark brown in color. They are smaller than many other members of the genus, generally less than 11 mm in length and approximately 5 mm wide across the abdomen. They are similar in size to *Euschistus obscurus*. *Euschistus quadrator* lacks dark spots

in the membranous area of the hemelytra, a characteristic present in other *Euschistus* species.



Figure 1. Dorsal view of *Euschistus quadrator* Rolston; adult male (left) and female (right), a stink bug.

Credits: Lyle Buss, University of Florida

Eggs

Euschistus quadrator eggs are initially semi-translucent and light yellow, and change color to red as the eggs mature. The micropylar processes (fan-like projections around the top

1. This document is EENY-523, one of a series of the Department of Entomology and Nematology, UF/IFAS Extension. Original publication date June 2012. Revised April 2013. Reviewed July 2020. Visit the EDIS website at <https://edis.ifas.ufl.edu>. This document is also available on the Featured Creatures website at <http://entnemdept.ifas.ufl.edu/creatures/>.

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of the egg) are longest in this species compared with other *Euschistus* spp.



Figure 2. Ventral view of *Euschistus quadrator* Rolston; adult male (left) and female (right), a stink bug.
Credits: Lyle Buss, University of Florida



Figure 3. One-day-old egg mass of *Euschistus quadrator* Rolston, a stink bug
Credits: Sara Brennan, University of Florida



Figure 4. Seven-days-old egg mass of *Euschistus quadrator* Rolston, a stink bug.
Credits: Sara Brennan, University of Florida

Nymphs

There are five nymphal instars, varying in color and size. More research is being conducted to determine color and size variation within instars.



Figure 5. First instar nymph of *Euschistus quadrator* Rolston, a stink bug.
Credits: Lyle Buss, University of Florida



Figure 6. Second instar nymph of *Euschistus quadrator* Rolston, a stink bug.
Credits: Lyle Buss, University of Florida



Figure 7. Third instar nymph of *Euschistus quadrator* Rolston, a stink bug.

Credits: Lyle Buss, University of Florida



Figure 8. Fourth instar nymph of *Euschistus quadrator* Rolston, a stink bug.

Credits: Lyle Buss, University of Florida



Figure 9. Fifth instar nymph of *Euschistus quadrator* Rolston, a stink bug.

Credits: Lyle Buss, University of Florida

Life Cycle

Eggs are laid in clusters and are usually located on the underside of a plant's leaves. The incubation period can be anywhere from three days to three weeks depending on the environmental conditions. First instar nymphs remain on or near the eggs in clusters, and disperse to find water and food sources around the time of the first molt. Development from egg to adult ranges from two to four weeks, depending on environmental conditions and the host plant. Overwintering adults become active in spring, which is usually when the first generation appears. *Euschistus quadrator* is bivoltine, meaning it has two generations per year. Overwintering adults typically colonize spring vegetables, white clover, and other wild hosts.

Hosts

Euschistus quadrator, like other stink bugs, is highly polyphagous. It is found on weeds such as clover, vetch and other legumes, which are thought to be reproductive hosts. It feeds on many different crops, though it is primarily found on cotton, soybeans and corn. Both nymphs and adults use essentially the same hosts although adults will sometimes "feed" on plants that are not suitable hosts for development from egg to adult, so adults can sometimes have a broader "host" range.

Economic Importance

Stink bugs cause injury to various fruits and vegetables by feeding, resulting in significant quality and yield loss. They have piercing-sucking mouthparts and most feed primarily on fruits and seeds. Stink bugs pierce plant tissues with their stylets, causing physical damage that resembles a pinprick. They also inject digestive enzymes to aid in extracting the plant's fluids. This results in injury in the form of discolored spots on the fruit or deformed areas, rendering the fruit unmarketable. If no reproductive plant tissues are available, stink bugs will feed on the vegetative growth. Stink bug feeding can also alter the taste of the fruit.

Management

Stink bugs are very mobile, polyphagous pests, making monitoring and management difficult.

Monitoring

Visual searches, ground cloths, pyramid traps, blacklight traps, fruit injury counts, beating, and sweep net samples have historically been used to determine stink bug infestation levels.

Mizell and Tedders developed a pentatomid trap that is used extensively in pecan and peach orchards. These pyramid traps were shown to be most effective when painted with industrial safety yellow paint as opposed to other colors, indicating that the color yellow may be an attractive visual stimulus for stink bugs. For details, see [Monitoring Stink Bugs with the Florida Stink Bug Trap](#).

Yellow pyramid traps were shown to increase attraction when paired with the *Euschistus* spp. aggregation pheromone methyl (2E,4Z)-decadienoate, offering a more convenient and efficient method of monitoring compared to visual searches, sweep netting or insecticidal sprays.



Figure 10. Yellow pyramid trap for monitoring stink bugs.
Credits: Sara Brennan, University of Florida

Tube traps made from clear plastic tubes with wire mesh cones on the ends were used in several studies with varying results, and are still commercially available for monitoring stink bugs.



Figure 11. Tube trap for monitoring stink bugs.
Credits: Sara Brennan, University of Florida

Cultural Control

Trap cropping may also be effective in reducing stink bug populations in economic crops. See [Trap Crops for Management of Stink and Leaf-footed Bugs](#).

Chemical Control

Currently the use of conventional insecticides, primarily synthetic pyrethroids, is the primary method for managing stink bug populations.

[Florida Insect Management Guide for fruits and nuts](#)

[Florida Insect Management Guide for vegetables](#)

[Florida Insect Management Guide for field crops and pastures](#)

[Florida Insect Management Guide for ornamentals](#)

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