

## Home Invasions

During fall and winter, adult BMSB aggregate in crevices to overwinter. In natural habitats, the bugs prefer upright dead oak and locust trees. In developed areas, large numbers of BMSB seek shelter under wooden shingles, and crawlspaces, attics, and living spaces of buildings. These overwintering aggregations constitute an objectionable nuisance for homeowners living in heavily infested areas. Once making their way indoors, stink bugs fly to light fixtures and may leave excrement on drapes and other surfaces.

To prevent stink bugs from entering their home, homeowners should work to seal all possible entrances. Installation of door sweeps, weather stripping and window screens is critical. Similarly, windows, crawlspaces and foundations should be properly caulked and sealed while screens should be fitted over chimneys. Pay particular attention to gaps that are formed where pipes or conduit enter the structure. Removal of all seed or pod-forming vegetation immediately adjacent to homes will further reduce attraction of stink bugs to a particular structure. Once inside, BMSB can be removed with a vacuum cleaner. Use of a shop vacuum with disposable bags and filters is more desirable than use of an upright or canister style household vacuum, which could take on an unpleasant odor following capture of many individuals. Although overwintering stink bugs are susceptible to insecticides, the carcasses will need to be removed to prevent odors and secondary scavengers such as carpet beetles.

Insecticides are of limited practical value in treating overwintering stink bugs. Prior to the onset of dispersal to overwintering sites, spot or crack and crevice applications to potential entry points with an appropriately labelled residual insecticide may provide temporary suppression. However, insecticide applications are not a viable long-term suppression strategy and appropriate resources should be diverted into proper sealing and screening as described above.

## Crop Damage

BMSB is an economic crop pest of fruit trees, legumes, ornamental trees, and vegetables in their native Asia. In the U.S., these stink bugs cause damage to a wide variety of plants including fruit trees, nut bearing trees, ornamental trees and shrubs, grapes, small fruits, most vegetable crops, soybean, field and sweet corn, sunflowers and cotton. They are known to feed on and damage multiple plant parts including the fruit, flowers, stems, and bark. Feeding damage may be severe enough to render fruits and vegetables unmarketable. Entomologists are actively working on development of monitoring technologies and strategic management plans for each of these crops.

## Reporting

This stink bug is becoming more common in Georgia. Anyone who finds an infestation is encouraged to collect a few specimens and drop them off at their local UGA County Extension Office (1-800-ASKUGA-1) or send close up pictures of the stink bugs to [rhoebeke@uga.edu](mailto:rhoebeke@uga.edu) for species confirmation. Your efforts will enable researchers to better track the expanding population and formulate appropriate management strategies for stakeholders in your area.

## More Information

The Northeastern IPM Center maintains an excellent website, [www.stopbmsb.org](http://www.stopbmsb.org), which includes a comprehensive list of known host plants and recent advances in monitoring and management for specialty crops. Additional information and updated distribution maps are available at [www.EDDMapS.org](http://www.EDDMapS.org), a website hosted by the University of Georgia.

## Figure Legends

**Figure 1.** Brown marmorated stink bug adult. Ishakh Pulakkathodi, University of Georgia.

**Figure 2.** Brown marmorated stink bug egg mass. David R. Lance, USDA APHIS PPQ, Bugwood.org.

**Figure 3a-b.** Brown marmorated stink bug nymphs. Steven Valley, OR Dept. of Agriculture, Bugwood.org (a); Susan Ellis, Bugwood.org (b).

**Figure 4.** Ventral view of a brown marmorated stink bug adult. PA Dept. of Conservation and Natural Resources, Bugwood.org.

**Figure 5a-c.** Similar colored stink bugs may include the brown stink bug (a), rough stink bug (b), dusky stink bug (c) or spined soldier bug (d). Ta-I Huang, University of Georgia (a); Steven Valley, OR Dept. of Agriculture, Bugwood.org (b); Ta-I Huang, University of Georgia (c); Frank E. French, GA Southern University, Bugwood.org (d).

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Front cover: Brown Marmorated Stink Bug (*Halyomorpha halys*). Photo credit Susan Ellis, Bugwood.org.

All images can be found in the Bugwood Image Database System at <http://images.bugwood.org>

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# Brown Marmorated Stink Bug *in Georgia*



## Introduction

The brown marmorated stink bug (BMSB), *Halyomorpha halys* (Stål), is an invasive insect pest that is established in north and central Georgia. The pest was first reported in the United States in 2001 in Lehigh Co., Pennsylvania, but had been observed by homeowners in that area since at least 1996. Native to Asia (China, Japan, Korea and Taiwan), the U.S. population appears to be most closely related to those in China. Although the original introduction to the U.S. is unknown, BMSB is an excellent hitchhiker and entomologists believe it was likely transported into the U.S. in freight containers. At present, this stink bug has been observed in at least 42 U.S. states and 2 Canadian provinces. Reproducing populations are particularly troublesome in the Northeast, mid-Atlantic and Pacific Northwest. Range expansion is facilitated by hitchhiking in vehicles and through commerce; additionally, there are few natural enemies established in the United States to control the populations.



Figure 1

BMSB (Fig. 1) is a plant feeding pest and thus does not pose a physical threat to people or pets. Further, it does not transmit human or animal pathogens, does not bite or sting and can be safely handled. Adult stink bugs do emit a malodorous secretion when captured and have been implicated in causing mild skin irritation in agricultural workers who come into continual physical contact. Unfortunately, this pest feeds on a wide range of plants commonly found in Georgia including ornamental plants, grapes, orchard crops, small fruits, vegetables and field crops. Additionally, it is a serious urban nuisance to home and business owners when large numbers of bugs move into homes, businesses and other structures in search of suitable overwintering habitat.

## Characteristics/Descriptions

BMSB adults overwinter from fall to early spring. In the spring, adults become active and begin to reproduce. Females typically lay 20-30 eggs in a cluster on the undersides of leaves. These eggs start out translucent white or light green colored and then the top of the eggs take on a reddish-orange hue before hatching (Fig. 2). Eggs hatch within a week and the newly emerged nymphs feed on the egg mass before moving to other parts of the plant. The insect goes through 5 developmental stages, or instars, before the final molt to the adult. Newly emerged adults are about one-half inch long (13-17 mm) and can begin producing eggs within three weeks; each female can produce several hundred eggs over a lifetime. The number of generations per year varies from one to at least two, depending on latitude.



Figure 4



Figure 2



Figure 3a



Figure 3b

First instars stay close to the egg mass and have a dark colored head and thorax, but the abdomens are typically red-orange with a few black bands evident. Subsequent instars actively disperse away from the egg mass and take on the characteristic black and white “marmorated” appearance. Late instars (Figs. 3a-b) are characterized by a black head and thorax with light colored abdomens punctuated by short dark colored bands around the periphery and on top; there may be hints of pink or red in the lighter colored regions of the abdomen. The most distinctive characteristic of nymphs is the contrasting white and black banding on their legs and antennae. Adults have a brown or grey marbled appearance on the dorsal side with conspicuous white banding on the antennae and legs, similar to that of the immatures. Adults also have light and dark colored spots around the lateral margins of their abdomen that are not covered by the wings when the insect is at rest. The leading edge of the shoulder is smooth and not pointed on the ends. On the ventral side (Fig. 4), BMSB are typically white to ash grey and may include a black spot at the terminus of the abdomen. The thin beak extends between the hind legs and is always dark colored.

## Similar Species

In Georgia, BMSB is most likely to be confused with the native brown stink bug (*Euschistus servus*), rough stink bug (*Brochymena quadripustulata*), dusky stink bug (*Euschistus tristigmus*) or spined soldier bug (*Podisus maculiventris*) (Fig. 5a-d). The brown stink bug is nearly identical in size and shape to the brown marmorated stink bug, but lacks the conspicuous black and white banding on the legs and antennae; further, it has a yellow-green underside that is free of dark spots. The rough stink bug has a small tooth in front of the eyes on each side of the head and the leading edge of the shoulders is toothed. Although the rough stink bug may occasionally land on homes, it is generally solitary and associated with heavily wooded areas. The dusky stink bug has sharply pointed shoulders and no banding on the antennae or legs. The predatory spined soldier bug has sharply pointed shoulders, a very stout beak, conspicuous black wings and a long abdominal spine extending between the hind legs.



Figure 5a: Brown stink bug



Figure 5b: Rough stink bug



Figure 5c: Dusky stink bug



Figure 5d: Spined soldier bug