

PEST ALERT

Florida Department of Agriculture and Consumer Services, Division of Plant Industry
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The Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål)

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INTRODUCTION: The brown marmorated stink bug, *Halyomorpha halys* (Stål), is an East Asian pest that became established in Pennsylvania (Hoebeke and Carter 2003). The first specimen was discovered in September 1998 (Jacobs and Bernhard 2009). It feeds on a wide range of hosts, including peach, apple, pear, fig, mulberry, grape, raspberry, citrus and persimmon, as well as on row crops such as snap bean and soybean. It also feeds on a number of weeds and ornamental plants (Jacobs and Bernhard 2009; Gill *et al.* 2005). Brown marmorated stink bug is a significant urban nuisance pest as well as being a pest of crops and ornamentals. The bugs come into homes in the winter, sometimes in very large numbers.

One of the ways that the bugs move around is by vehicular transit (Fig. 1). For this reason, US distribution of this pest is a moving target. Populations have become established in Pennsylvania, New Jersey, Maryland, Delaware, Ohio, South Carolina, West Virginia and Oregon (Sargent *et al.* 2009). An infestation that came in with items stored in Pennsylvania was thought to be eradicated at a storage facility in California in 2002; however, the bugs showed up again at another California location in 2005 (Sargent *et al.* 2009). An EPPO quarantine alert (EPPO 2008) also lists Maine, Maryland, New York, Virginia and Rhode Island in addition to the above states. There also is a report from Cleveland, Mississippi (George Hamilton, Rutgers University, personal communication). These bugs are suited ideally to hitchhiking with items moved by human activity.

In Florida, a specimen was caught in a trap next to a commercial ship berth at Port Everglades. Additionally, several specimens have been found in homes and vehicles of seasonal residents, or residents who moved to Florida from various infested states. A single brown marmorated stink bug found in the Jacksonville area could not be confirmed as resulting from the movement of residents or vehicles, but no other specimens have been found in the area after repeated surveys.

DESCRIPTION: Brown marmorated stink bugs are about 5/8 inch long. They are mottled tan on the back with mottled markings. The edges of the abdomen extend out farther than the wings and have a conspicuous black and white checkered pattern. Antennae have two pale stripes (Fig. 2).

Several other Florida stink bugs are similar to the brown marmorated stink bug. These include brown stink bugs (*Euschistus* spp.) and the bark stink bugs (*Parabrochymena* spp.). Brown stink bugs lack the antennal banding, and bark stink bugs have numerous teeth around the edges of the head and pronotum, which are lacking on the brown marmorated stink bug (Fig. 3).

BIOLOGY: In the northern United States, it is reported that there is only one generation per year. It is possible to have multiple generations per year in warmer climates. Brown marmorated stink bugs overwinter as adults. Approximately two weeks after emergence in the spring, adults mate and soon begin laying egg masses. Egg masses are laid at weekly intervals, and each female may lay an average of 244 eggs in her lifetime (Nielsen and Hamilton 2009). Immature brown marmorated stink bugs emerge from eggs approximately four to five days after eggs are laid. There are five nymphal instars, with each stage lasting about one week before developing to the next stage (Gyeltshen *et al.* 2005, revised 2010).

HOSTS: Brown marmorated stink bug is polyphagous and is a pest of several agricultural crops throughout its native range. Around 300 host plants are reported (Nielsen and Hamilton 2009). Some reported hosts include apples, beans, citrus, peaches, pears, persimmons, soybeans, corn and some ornamental plants (EPPO 2008).

ECONOMIC IMPORTANCE: Brown marmorated stink bug has the potential to be a significant pest of agricultural crops in Florida. Nielson and Hamilton (2009) conducted a study of brown marmorated stink bug populations in New Jersey and Pennsylvania and found about 25% damage per fruit tree. The damage from brown marmorated stink bug feeding is similar to that of other stink bugs. The mouthparts are used in a straw like fashion by piercing the plant material, resulting in small necrotic spots on fruits and leaf surfaces. This direct damage may be compounded by secondary infections and scarring as the fruit matures. Peach fruit often display a characteristic distortion referred to as “catfacing.” Some of the damage might not affect the palatability of the fruit but nevertheless may make the fruit unsuitable for the market.

Additionally, brown marmorated stink bug is a nuisance pest both indoors and outdoors. The bugs are attracted to the outside of houses on warm fall days while in search of overwintering sites.

ACTION: Watch for brown marmorated stink bugs so that we can delay their establishment in Florida as long as possible. Pathways of potential introduction include movement of people and goods. Florida has numerous winter residents who might accidentally transport these bugs from infested states. Please report any finds to the Florida Department of Agriculture and Consumer Services at 888-397-1517.

FURTHER INFORMATION: There is abundant information on the Internet about these bugs. Some useful links are listed below:

Steve Jacobs and Karen Bernhard, Pennsylvania State University
<http://www.ento.psu.edu/extension/factsheets/brownMarmoratedstinkbug.htm>
Revised September 2010. Accessed 12 November 2010.

Jamba Gyeltshen, DPM, Gary Bernon, and Amanda Hodges, University of Florida
http://entomology.ifas.ufl.edu/creatures/veg/bean/brown_marmorated_stink_bug.htm. Revised July 2010. Accessed 12 November 2010.

Stanton Gill et al., Regional Pest Alert, Northeastern IPM
http://www.hgic.umd.edu/content/documents/Stink_Bug_Pest_Alert.pdf. Accessed 12 November 2010.

George Hamilton et al., Rutgers
<http://njaes.rutgers.edu/pubs/publication.asp?pid=FS002>. October 2008. Accessed 12 November 2010.

EPPO
http://www.eppo.org/QUARANTINE/Alert_List/insects/halyomorpha_halys.htm. 2008. Accessed 12 November 2010.

Celeste Welty et al., Ohio State University
http://ohioline.osu.edu/hyg-fact/pdf/FS_3824_08.pdf. 2008. Accessed 12 November 2010.

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- European and Mediterranean Plant Protection Organization. 2008.** *Halyomorpha halys* (Heteroptera: Pentatomidae) Brown marmorated stink bug. QUARANTINE Alert.
http://www.eppo.org/QUARANTINE/Alert_List/insects/halyomorpha_halys.htm. Accessed 12 November 2010.
- Gill, S., G. Bernon, R. Hoebeke, G. Hamilton, A. Nielsen, P. Shearer, G. Williams, K.M. Bernhard, and G. Krawczyk. 2005.** Brown marmorated stink bug. Regional Pest Alert. Northeastern IPM Center.
http://www.hgic.umd.edu/content/documents/Stink_Bug_Pest_Alert.pdf
- Gyaltshen, J., G. Bernon, and A. Hodges. 2005 (revised 2010).** Brown marmorated stink bug, *Halyomorpha halys* Stål (Insecta: Hemiptera: Pentatomidae). University of Florida IFAS Extension Publication EENY 346.
<http://edis.ifas.ufl.edu/pdffiles/IN/IN62300.pdf>. Accessed 12 November 2010.
- Hoebeke, E.R. and M.E. Carter 2003.** *Halyomorpha halys* (Stål) (Heteroptera: Pentatomidae): A polyphagous plant pest from Asia newly detected in North America. Proceedings of the Entomological Society of Washington 105: 225-237.
- Jacobs, S. and K.M. Bernhard. 2009. Revised September 2010.** Brown Marmorated Stink Bug. Penn State Entomological Notes. <http://www.ento.psu.edu/extension/factsheets/brownMarmoratedstinkbug.htm> Accessed 12 November 2010.

Nielsen AL, Hamilton GC. 2009. Seasonal occurrence and impact of *Halyomorpha halys* (Hemiptera: Pentatomidae) in tree fruit. *Annals of the Entomological Society of America* 102: 608-616.

Sargent, C., M. Raupp, S. Sardanelli, P. Shrewsbury, D. Clement, and M.K. Malinoski. 2009. Brown marmorated stink bug *Halyomorpha halys* Stål (Hemiptera: Pentatomidae). University of Maryland Fact Sheet. (in press).



Figure 1. Brown marmorated stink bugs infesting a motor home.
Photograph courtesy of anonymous owner.



Figure 2. Brown marmorated stink bug.
Photograph courtesy of Jeffrey W. Lotz (DPI).



Figure 3. A: Brown marmorated stink bug; B: brown stink bug; C: bark stink bug. Photographs courtesy of David Ziesk and Michael Thomas (DPI).