

The Brown Marmorated Stink Bug (BMSB): Michigan's Newest Home Invader

Paul S. Botch and Ernest S. Delfosse
Department of Entomology
Michigan State University

Email: botchpau@msu.edu

Michigan Mosquito Control Association
30th Annual Conference



U.S.

The New York Times

Move Over, Bedbugs: Stink Bugs Have Landed

By KEN MAGUIRE SEPT. 26, 2010



Kelli Wilson and her father, Richard Lee Pry, cleared stink bugs from her porch Friday in Burkittsville, Md. The shield-shaped invaders have damaged fruit and vegetable crops. Steve Ruark for The New York Times



15
comments

Brown marmorated stink bugs pestering Southwest Michigan homeowners, farmers



By Rosemary Parker | rparker3@mlive.com

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ST. JOSEPH, MI -- A new agricultural pest capable of stripping fields and orchards is annoying Southwest Michigan homeowners, too.

The brown marmorated stink bug, an invasive Asian insect that has decimated fruit crops in Pennsylvania, is slow in making its way into Michigan, surveillance traps show.



Brown marmorated stink bug on a soy leaf.

Courtesy Michigan State University

In the [final weekly report](#) of the [Michigan State University Extension](#) statewide

monitoring program for 2014, MSU said the stink bug was not detected in great numbers in the surveillance traps set around likely fruit and vegetable crops.

The bug was first sighted here in 2011; the monitoring program is intended to provide early warning should the pest start showing up in greater numbers, the report said.

"Except for a few hotspots in Berrien County and two instances of suspected fruit damage by BMSB in Berrien County and eastern Ottawa County, evidence of BMSB was extremely hard to find," the report said. "Only four out of the 64 traps



Brown marmorated stink bugs are invading Michigan in different numbers to be showing up as household pests, scientists say. (Courtesy Michigan State University)

Brown Marmorated Stink Bug

Halyomorpha halys (Stål)

Habitat:

- Urban structures.
- Woodlots.
- Weedy riparian habitat.
- Agricultural areas.
- Feeds on >170 plants.

Appearance:

- Mottled brown.
- Alternating dark, light bands on antennae & legs.
- Black & white striping along sides of abdomen.
- Smooth shoulders.
- Length 12.0 – 17.0 mm.



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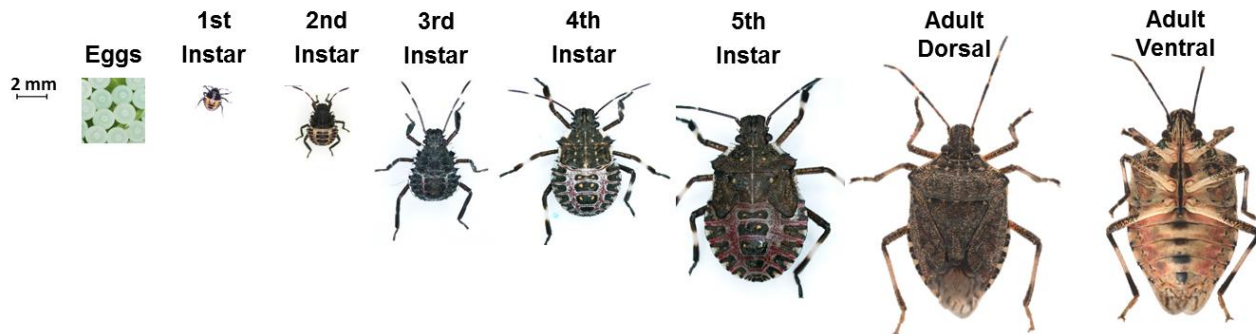
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BMSB Life Cycle



Life Stages



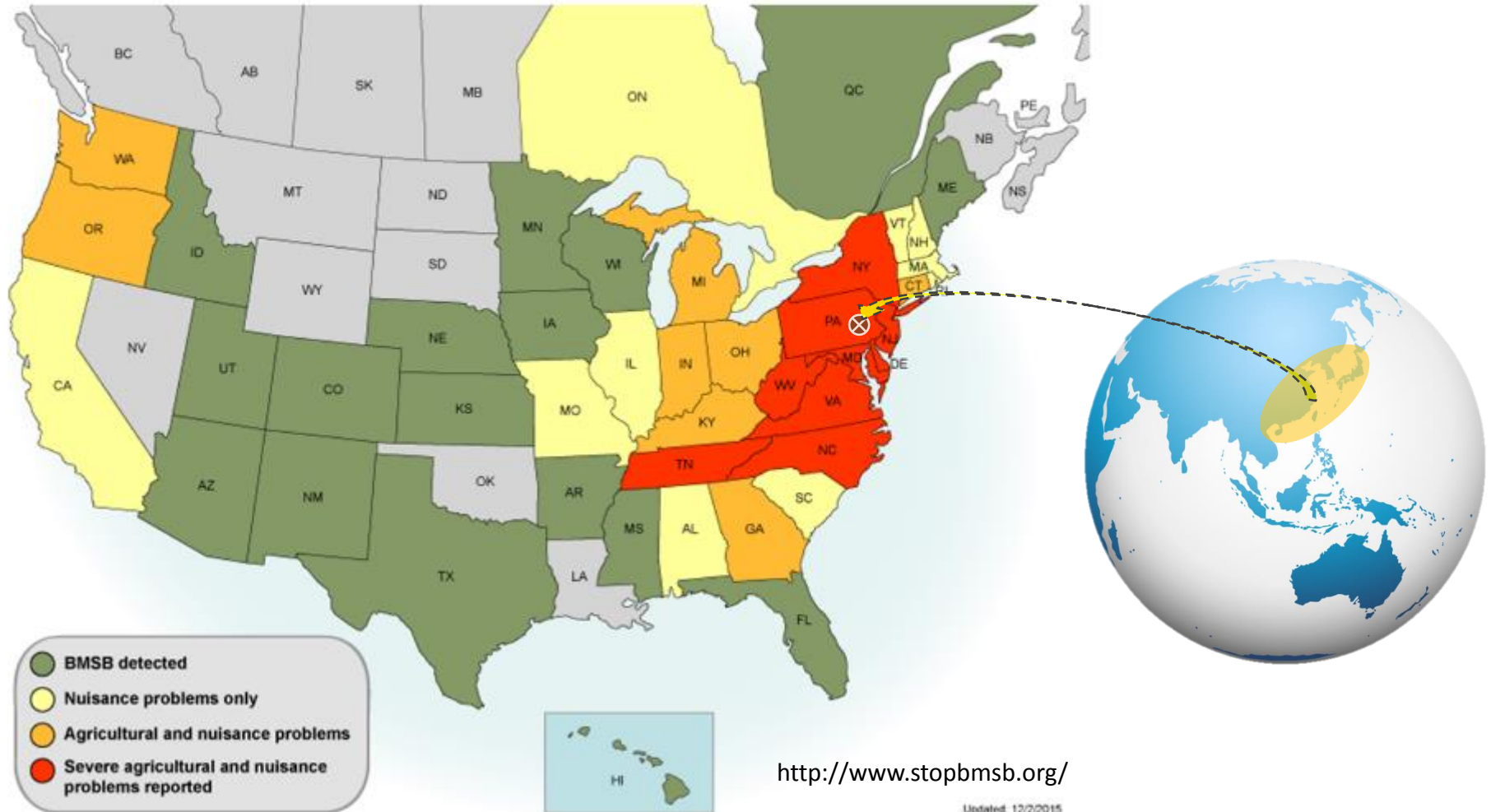
Nymphs go through 5 stages (instars) before developing into adults.

Origins:



State-by-State

Brown marmorated stink bug (BMSB) has been detected in 42 states and two Canadian provinces, posing severe agricultural problems in nine states and nuisance problems in seventeen others. Click on a state or province in the map below to find state-specific resources, contact information, and news, or to report a sighting of BMSB. The map is also available as a [downloadable PDF](#).



Seasonal Habitat Use



Feeds on > 170 plant species



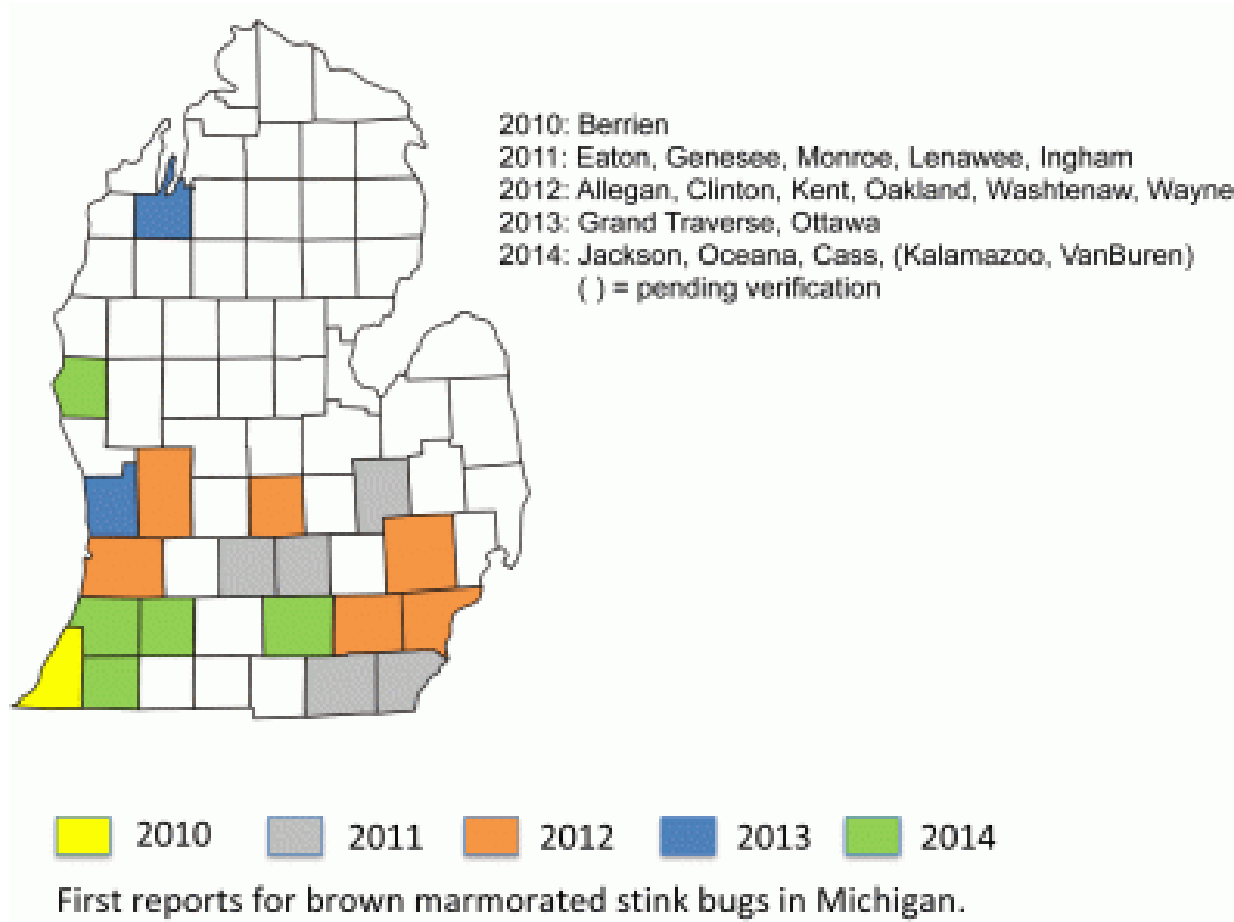
- **In 2010: \$37 million cost to mid-Atlantic apple growers.**

Leskey et al. 2012. Pest status of the brown marmorated stink bug, *Halyomorpha halys* in the USA. *Outlooks on Pest Management*. 23(5): 218-226.



While inspecting for BMSB in the woods, researchers observed tree characteristics such as moisture level, type, size, and surface permeability. Source: D. Lee, USDA Agricultural Research Service

History in Michigan





The Midwest Invasive Species Information Network (MISIN) is a regional effort to develop and provide an early detection and rapid response (EDRR) resource for invasive species.

The goal of this regional resource is to assist both experts and citizen scientists in the detection and identification of invasive species in support of the successful management of invasive species.

This effort is being led by researchers with the Michigan State University Department of Entomology [Laboratory for Applied Spatial Ecology and Technical Services](#) in conjunction with a growing consortium of [Supporting Partners](#).

Report Sightings



Report invasive species in your area. Your sightings are an important part of any successful control effort.

MISIN Alerts



Create custom email alerts for new observations in your area of interest.

Species Distribution



Browse the distribution of reported invasive species. Search by common name and geography.

[HOME](#) [ABOUT](#) [REPORT SIGHTINGS](#) [SPECIES INFORMATION](#) [BROWSE DATA](#) [CITIZEN SCIENCE](#) [TOOLS](#) [MY MISIN](#)

Search by Date

Search by Species

Search by Geography

Search by Project

Search by Contributor

Reported Species Observations

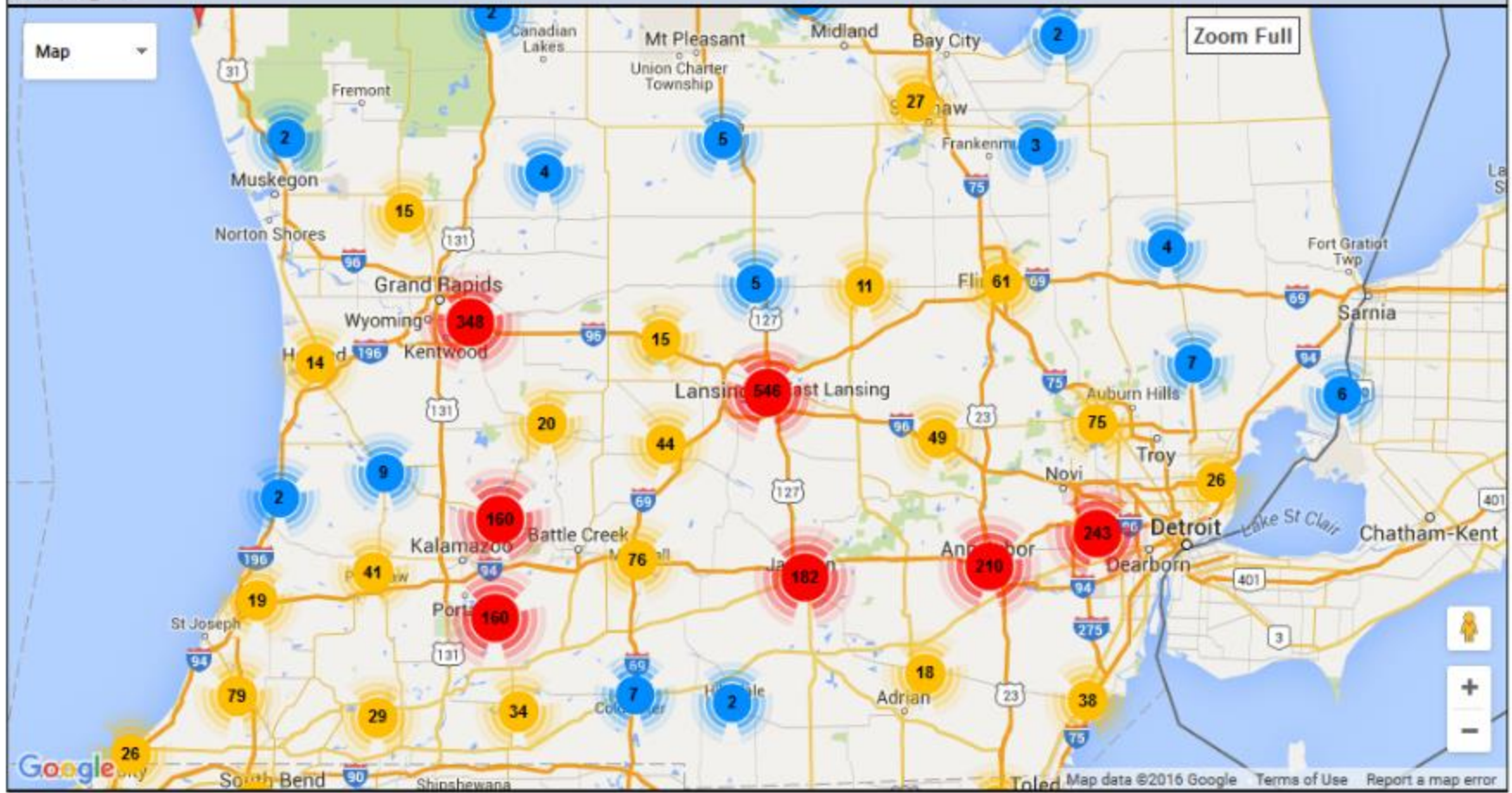
Brown Marmorated Stink Bug



Messages:

Map

Zoom Full



An Urban “Nuisance” Pest

Aggregates and enters buildings in the fall months (Sept – Oct)

- Strong odor
- Staining secretions
- Do not harm or carry disease



(<http://mariacamach7.wix.com/bmsb#!nuisance>)



(<http://mariacamach7.wix.com/bmsb#!nuisance>)



Photo Credit:

Subobjective 1.1.2: Movement to and from overwintering sites and overwintering survivorship.

Tracy Leskey, Starker Wright, and Doo Hyung Lee
USDA-ARS

Mike Raupp, Paula Shrewsbury, and Holly Martinson
University of Maryland

George Hamilton
Rutgers University

Chris Bergh
Virginia Tech

Greg Krawczyk
Penn State University



<http://www.stopbmsb.org/about-us/reports-and-presentations/presentations-and-posters/>

Points of Entry



Doors

Windows

Utility interfaces

Siding & trim

Chimneys

Points of Entry



<http://bugoftheweek.com/blog/2013/9/13/the-gathering-storm-brown-marmorated-stink-bug-ihalyomorpha-halysi>



New Tip Sheet for Homeowners

MICHIGAN STATE UNIVERSITY Extension
Courtesy of MSU Extension.
For additional information, visit www.msue.msu.edu.

The Brown Marmorated Stink Bug (BMSB): Information for Michigan Residents on a New Home Invader

Paul Botch, Department of Entomology, Michigan State University
Diane Brown, Michigan State University Extension

Many Michigan residents may not yet be familiar with the brown marmorated stink bug (BMSB), but they may have seen this new invasive pest crawling around inside homes. Similar to the multicolored Asian lady beetle, this stink bug enters buildings in the fall to overwinter and can be a serious nuisance. Some infestations can reach staggering numbers (Inkley, 2012). In eastern states where this pest is established, over 25,000 bugs have been reported in a single home! The BMSB is native to Asia and has few predators in North America adapted to feeding on it. Consequently, it continues to spread across the U.S. in large numbers. Unlike the multicolored Asian lady beetle, the BMSB feeds on plants and can cause massive damage to a wide variety of fruits, vegetables, nuts, legumes and other valuable crops in Michigan. Therefore, BMSB is a not only a nuisance pest of homes and gardens but an economic pest of agriculture. This fact sheet will provide information and advice to Michigan residents for dealing with this new invasive pest.



Adult brown marmorated stink bug (Photo: Paul Botch, MSU Department of Entomology)

Brown marmorated stink bugs clustered on a porch screen door in September. (D. Silman, Penn State University) http://www.psu.edu/dept/nkbiology/naturetrail/speciespages/stink_bug.html



Home Invasions

Michigan residents will often notice BMSB outside their homes at the beginning of fall (September and October) before they invade the interior. As the weather cools, the stink bugs tend to aggregate on south and west facing sides of the home that receive the most sunlight. In the mid-Atlantic U.S., where BMSB has been established for a longer period of time, these aggregations can be quite large. In Michigan, aggregations may only consist of a handful of bugs now, but it is expected that numbers will increase over time. As populations continue to grow over the next several years, more and more of these invasive stink bugs will seek shelter inside of homes.

BMSB enter homes just about wherever and however they can find a way in. Entry points can include gaps around doors, windows or air conditioner units. Stink bugs can crawl behind vinyl and shingle siding to enter attics or wall spaces (Inkley 2012). Attic vents, loose or cracked fascia, and utility interfaces can also serve as entry points for BMSB (Ingels and Varela 2014). Once inside, BMSB can infest living spaces throughout homes and also hide in large numbers in attics, walls and crawl spaces (Inkley 2012). True to their name, these bugs stink.

1

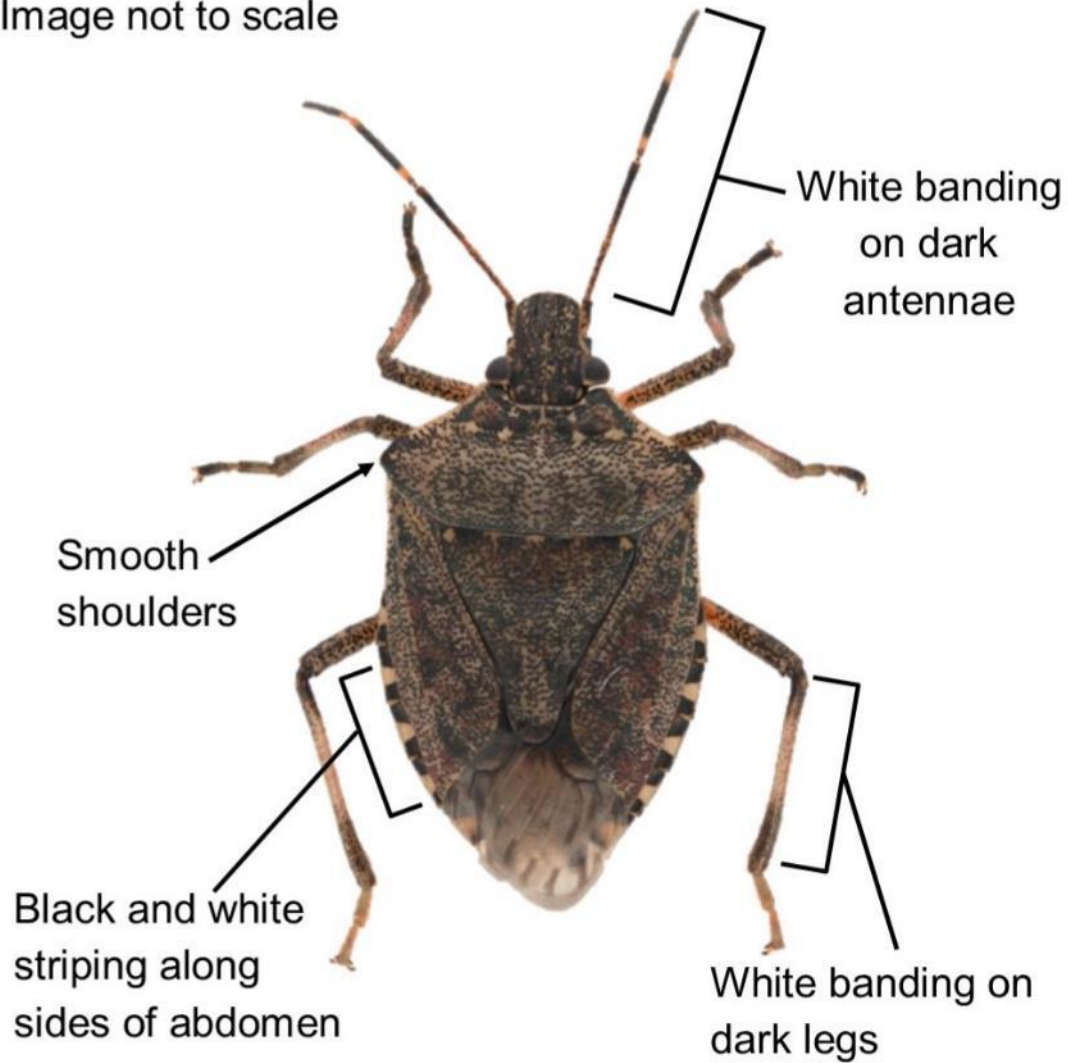
- Exclusion:
 - Repair.
 - Fill or cover gaps.
 - Special attention to south & west facing sides.
- Eradication:
 - Shop vacuum.
 - Soapy water.
 - Light traps.
 - Pesticides not recommended indoors.

Identification



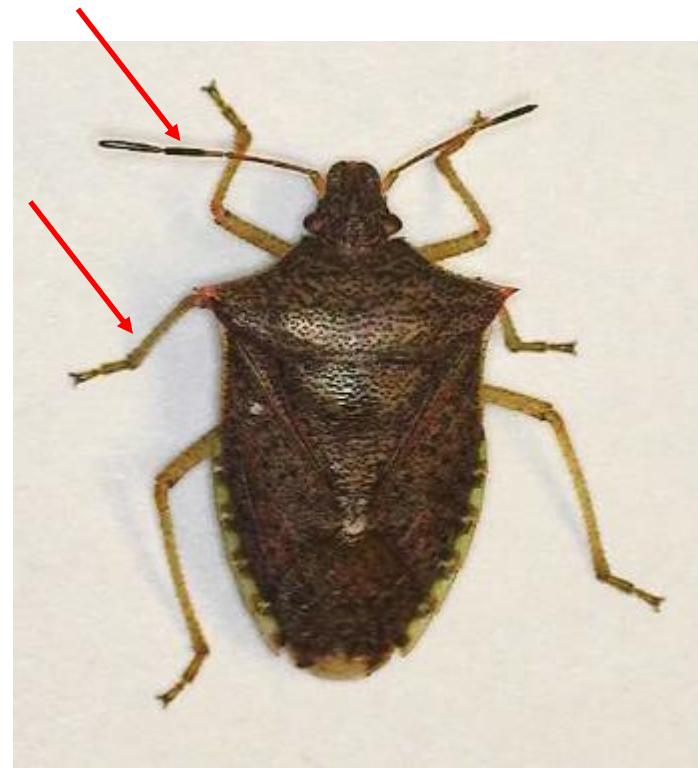
Brown Marmorated Stink Bug Key Characters

Image not to scale



B. DeMarco 2014

BMSB Identification



What Else Can Be Mistaken For BMSB?

Western Conifer-Seed Bug



Boxelder Bug



Management Options

- **There are no sustainable options for management of BMSB anywhere in the world.**
- **A biologically based integrated pest management (IPM) program must be developed for BMSB.**
- **This will involve chemical and cultural control methods, particularly for high-value crops.**
- **However, classical biological control using co-evolved natural enemies is the only tactic that can manage a pest sustainably on a landscape basis.**



A Potential Biological Control Agent: *Trissolcus japonicus*



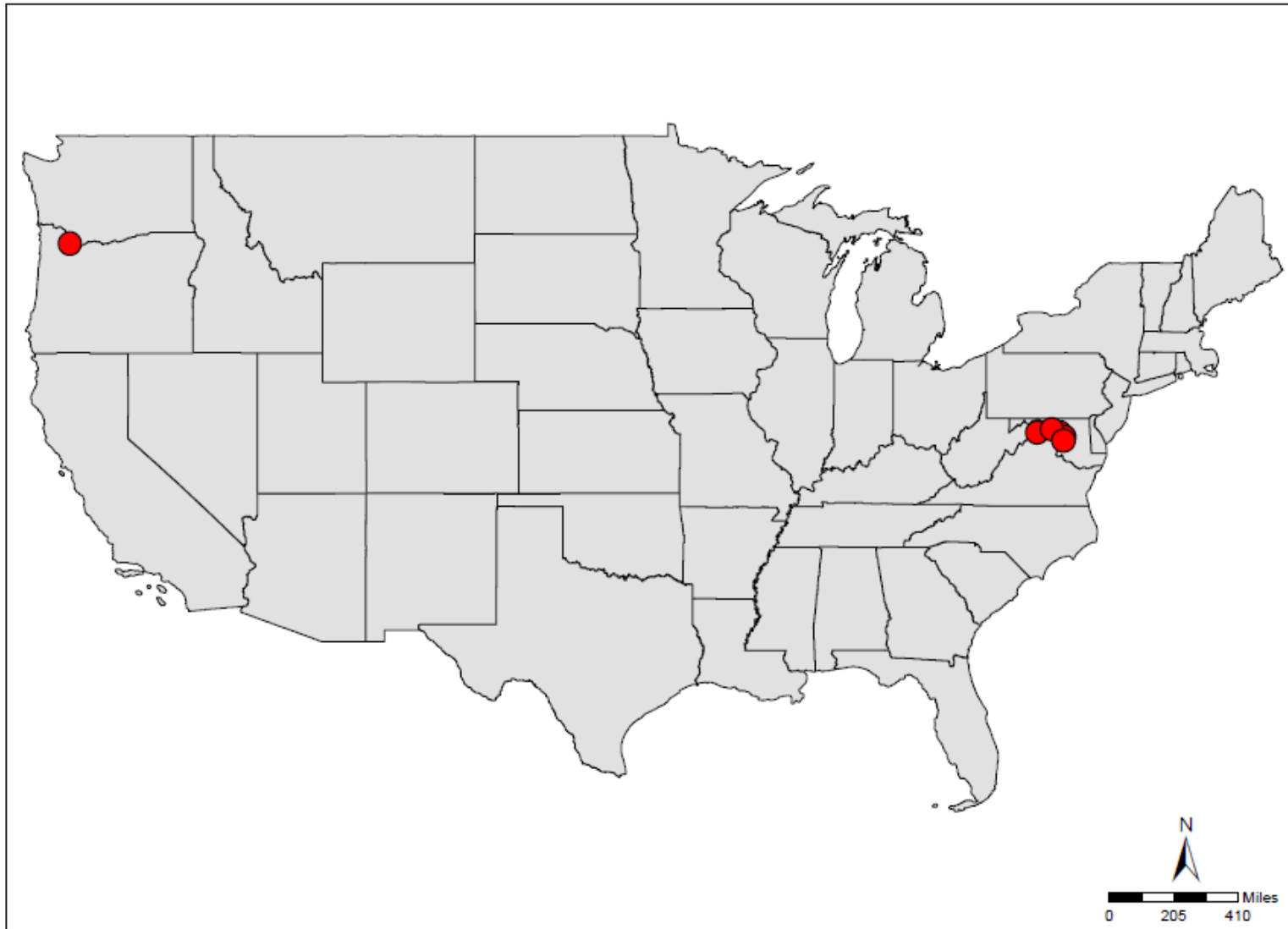
<http://delfosse.ent.msu.edu/index.html>

A Potential Biological Control Agent: *Trissolcus japonicus*



<http://delfosse.ent.msu.edu/index.html>

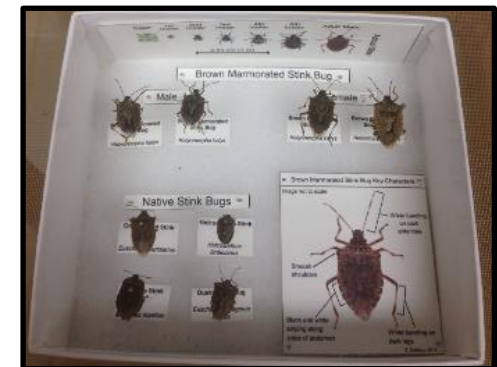
Locations Where *T. japonicus* Have Been Found



We welcome the opportunity to work with pest management professionals

- We can provide:
 - Information, research updates, & participation in meetings.
 - Educational resources.
 - Other?
- We seek:
 - Live stink bugs.
- Contact:

Ernest S. Delfosse
Department of Entomology
Natural Science Building
288 Farm Lane, Room 35B
Michigan State University
East Lansing, MI 48824-1115
Office: 517-884-7032
delfosse@msu.edu



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Delfosse Classical Biological Control Lab