





ILLINOIS
FIRST DETECTOR



**INVASIVE INSECTS
THREATENING YOUR
BACKYARD:**
BROWN MARMORATED STINK BUG & VIBURNUM LEAF BEETLE

Kelly Estes – Illinois Natural History Survey

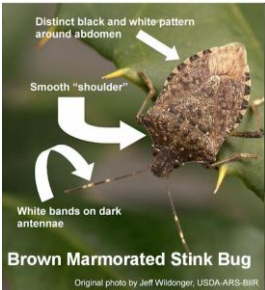
History



- Native to Asia
- First discovered in Pennsylvania, 1998
- Adults emerge in late April/early May and will mate and lay eggs through August.
- Nymphs will go through 5 molts
- Adults will search for overwintering sites starting in September
- Depending on temperature, multiple generations are possible

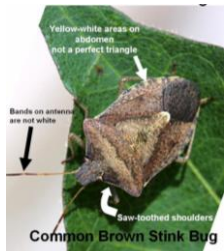


Identification

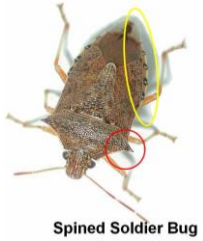


Brown Marmorated Stink Bug
Original photo by Jeff Wilsonger, USDA-ARS-BBRT


Common Look-A-Likes



Common Brown Stink Bug



Spined Soldier Bug



Common Look-a Likes

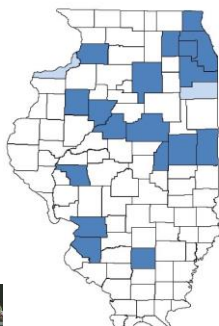


BMSB – status in Illinois

- 2 interceptions in December of 2009
 - Found and confirmed
 - Cook County, September 2010 – suburban neighborhood
 - Kane County, January 2011 – overwintering population in house
 - Champaign & McLean Counties, spring 2011 – residential area
- * 2011 confirmation first significant infestation confirmed in Illinois*



Current Known Illinois Distribution

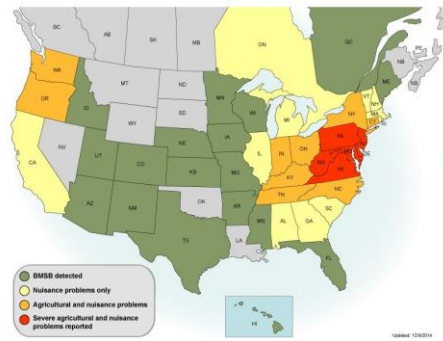


Brown Marmorated Stink Bug Confirmations	
County	Year Confirmed
Cook	2010
Kane	2011
McLean	2011
Champaign	2011
Du Page	2012
Vermilion	2012
Whiteside	2012
Madison	2012
Morgan	2012
St. Clair	2013
Tazewell	2013
LaSalle	2013
Piatt	2013
Jefferson	2013
Will	2013
Kankakee*	2013
Lake	2014
Knox	2014
Peoria	2014
Rock Island*	2014

* Suspected but unconfirmed



Current Known Illinois Distribution

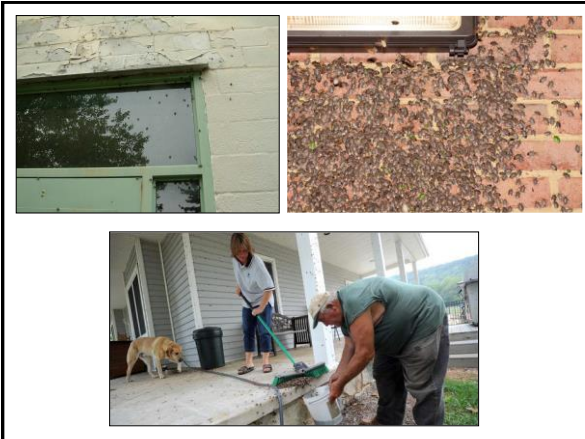
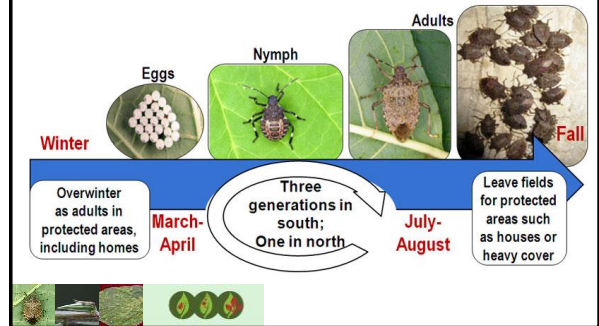


Lifecycle

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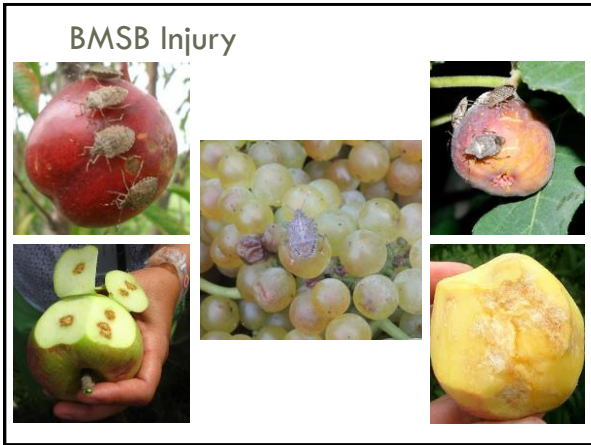
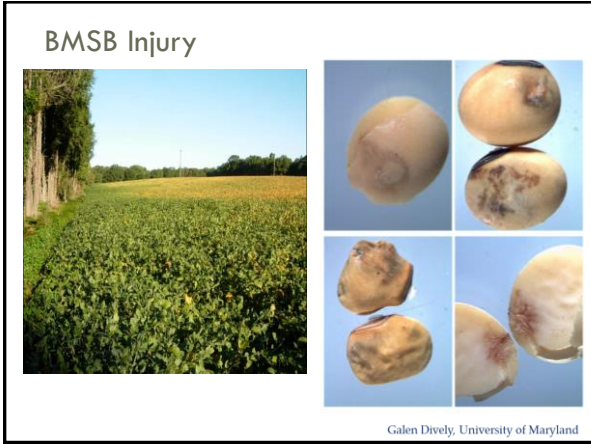
Lifecycle



More than a nuisance pest

- Feeds on a variety of host plants
 - Ornamental shrubs (butterfly bush, viburnum, rose)
 - Ornamental trees (crabapple, walnut, maple, redbud)
 - Vegetables (green bean, asparagus, pepper)
 - Fruits (pear, apple, cherry, grape, raspberry)
 - Agronomic (soybean, corn)
- Highly mobile and easily switches hosts
- Like other stink bugs, BMSB sucks plant juices with its beak causing plant injury





BMSB Impact to Nurseries (and Homeowners/Landowners?)

- High risk – due to BSMB highly mobile, highly polyphagous
- BMSB emerge in spring, become active on warm, sunny days.
- Trees, shrubs, and ornamentals near overwintering sites are best places to observe early season activity
- As spring progresses into summer, BMSB can be found on a wider host range



BMSB Impact to Nurseries (and Homeowners/Landowners?)

- BMSB tend to prefer hosts with fruiting bodies, buds, and pods.
- List of hosts: <http://www.stopbmsb.org/where-is-bmsb/host-plants/>
 - Top ornamental hosts include: lilac, maple, redbud, and ornamental cherry
- As agricultural crops senesce/are harvested in the fall, BMSB populations out east move back to woody ornamentals as hosts



BMSB Injury to Woody Ornamentals

- Potential Injury
 - Wounding/wet spots
 - Discoloration to foliage
 - Tree stress?
 - Plant death reported (herbaceous)
 - Disease transmission, secondary infection



Monitoring/Trapping



IPM for the BMSB

<http://www.stopbmsb.org/managing-bmsb/management-overview/>

□ Homes

- Exclusion (caulk any holes, make sure window screens are tight, check weather stripping, protect chimney with a screen)
- DO NOT use pesticides in homes (foggers generally do not work, use a vacuum or drop bugs in soapy water).



IPM for the BMSB

□ Gardens

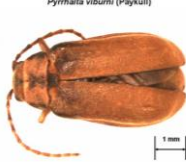
- Physical Barriers ? (row covers, sticky barriers around tree trunks)
- Traps (mostly used for monitoring purposes..could potentially used to reduce overwintering populations)
- Trap Crops (may be successful – use early maturing crops to protect late season crops)
- Pesticides/Biopesticides (generally requires multiple applications as BMSB are very mobile and can reinfest area quickly)



Viburnum Leaf Beetle

Viburnum Leaf Beetle

Pyrrhalta viburni (Paykull)



Dorsal view

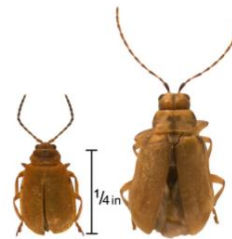
Photo: C. M. F. Pierce & M. A. McDonough



Ventral view



Don't Be Fooled By Look-A-Likes



There are no similar species found feeding on viburnum. The *Galerucella* beetle (biological control agent for purple loosestrife) looks similar, but is smaller (~1/8 – 1/4 inches long) and does not attack viburnum plants.



Don't Be Fooled By Look-A-Likes

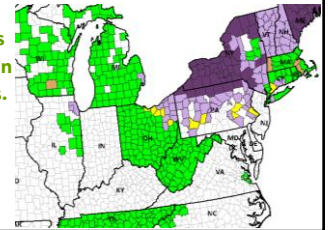


- The elm leaf beetle is also similar in appearance, but with a few distinct differences.
 - Slightly larger than VLB
 - Light brown body with dark stripe on edge of elytra
 - Feeds on elm, not Viburnum

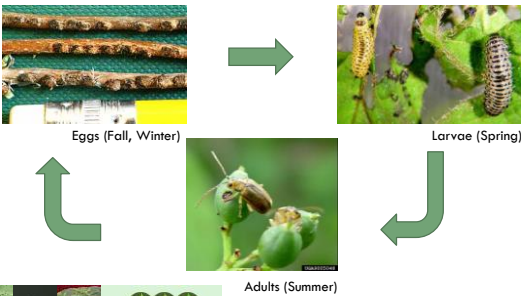


BVLB – status in Illinois

- First reported in Illinois in 2009 (Cook County)
- Reported in DuPage County in 2012
- Isolated reports in both Cook and DuPage Counties since then
- 2014 – several reports of severe defoliation in both of those counties.



Lifecycle



Lifecycle



Injury

- Both larval and adult stages can cause severe defoliation.
 - Feed on the leaves
 - Defoliate between the midrib and larger veins



Injury

- Heavy infestations can defoliate shrubs, cause dieback, and eventually kill the plants.



Management

- Feeding is limited to certain species of viburnum...Plant Resistant Varieties

Highly Susceptible	Highly Resistant
<i>V. dentatum</i> (arrowwood viburnums)	<i>V. bodnantense</i> (dawn viburnum)
<i>V. nudum</i> (smooth withered viburnum)	<i>V. carlesii</i> (Koreanspice viburnum)
<i>V. opulus</i> (European cranberrybush viburnum)	<i>V. davidii</i> (David viburnum)
<i>V. opulus</i> var. <i>americana</i> (American cranberrybush viburnum)	<i>V. x juddii</i> (Judd viburnum)
<i>V. propinquum</i> (Chinese viburnum)	<i>V. plicatum</i> (doublefile viburnum)
<i>V. rafinesquianum</i> (Rafinesque viburnum)	<i>V. rhytidophyllum</i> (leatherleaf viburnum)
	<i>V. setigerum</i> (tea viburnum)
	<i>V. sieboldii</i> (Siebold viburnum)

- Complete List:
<http://www.hort.cornell.edu/vlb/suscept.html>



Management

- Remove egg-infested twigs
 - Single most effective measure to limit beetle populations
- Encourage beneficial insects
- Foil larvae
 - Preventing larvae from reaching soil to pupate
- Pesticides
 - Most effective when larvae first emerge
 - Home, Yard, and Garden Pest Guide for labeled insecticides



