

Brown Marmorated Stinkbug Survey in Southern California



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Pheromone Trapping Program for the Brown Marmorated Stinkbug

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By Mark Hoddle | June 17, 2013

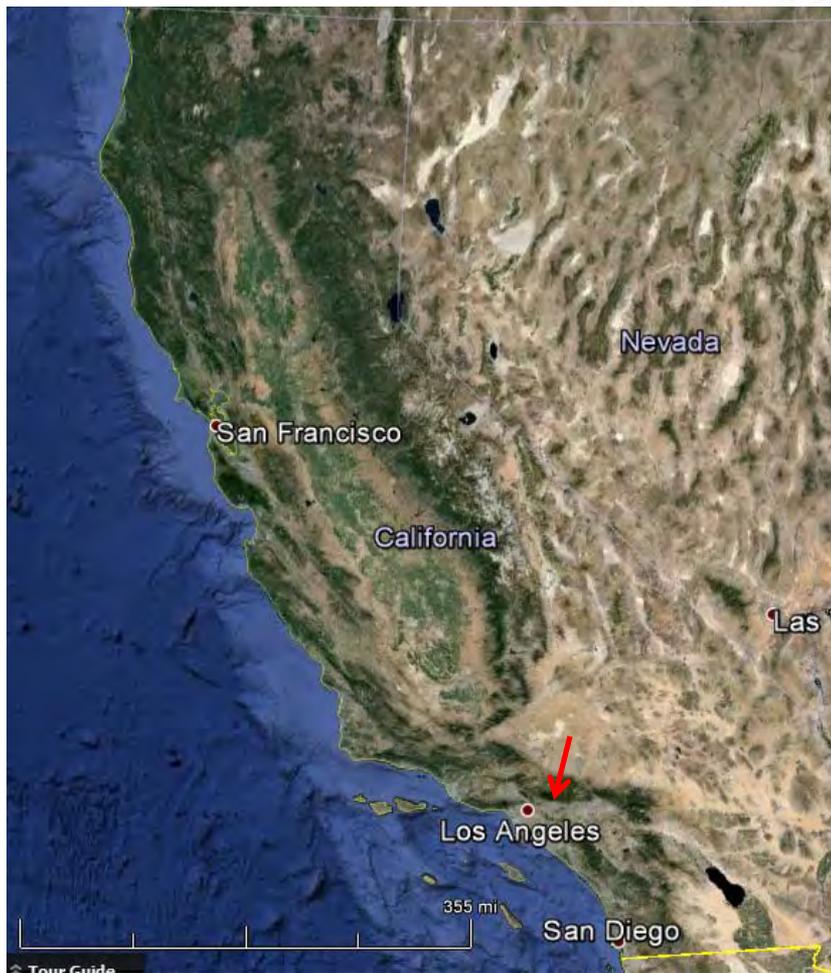
A Pheromone Trapping Program for the Brown Marmorated Stinkbug (*Halyomorpha halys*) Begins in Los Angeles County, California

Brown marmorated stinkbug (BMSB), *Halyomorpha halys* (Hemiptera: Pentatomidae), is an invasive insect pest native to China, Japan, Korea, and Taiwan. It was first discovered and officially documented on the east coast of the USA around 1998. This pest has also been reported from numerous US states including: California, Connecticut, Delaware, Indiana, Kansas, Kentucky, Maine, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, Washington, D.C. and West Virginia. It may also have established populations in Switzerland and Canada.

This stinkbug has a very broad host range having been recorded feeding on tree fruits, vegetables, shade trees, and legume crops, with a strong preference for apples, plums, pears, peaches, and cherries. It has caused significant economic damage to agricultural crops on the east coast, especially apples. In 2010, this pest replaced key apple pests, such as codling moth, as the primary pest attacking apples, and it was estimated that the economic impact to the apple industry on the east coast of the USA could have exceeded \$37 million. Feeding damage results when immature BMSB (called nymphs) and adults puncture fruit with their piercing-sucking mouthparts. This feeding damage causes distortion of developing fruit and is referred to as "cat-facing."



A Brown Marmorated Stinkbug pheromone trap set up in Pasadena





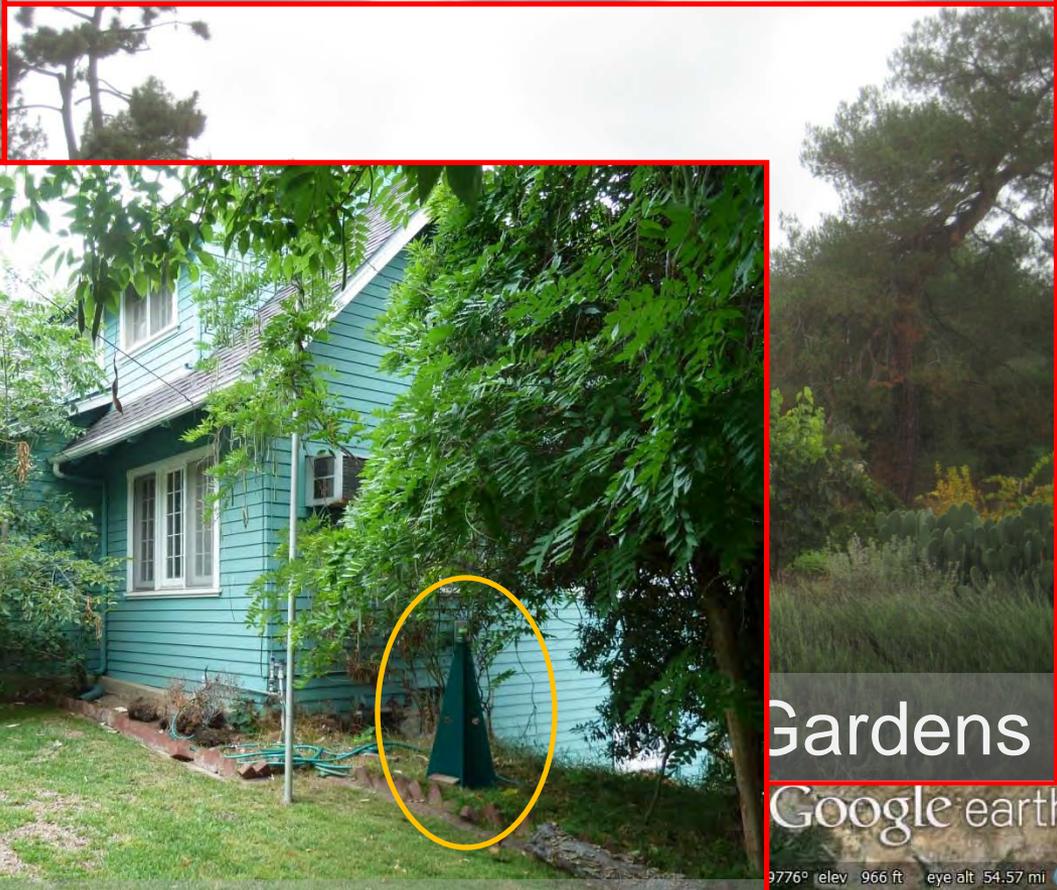
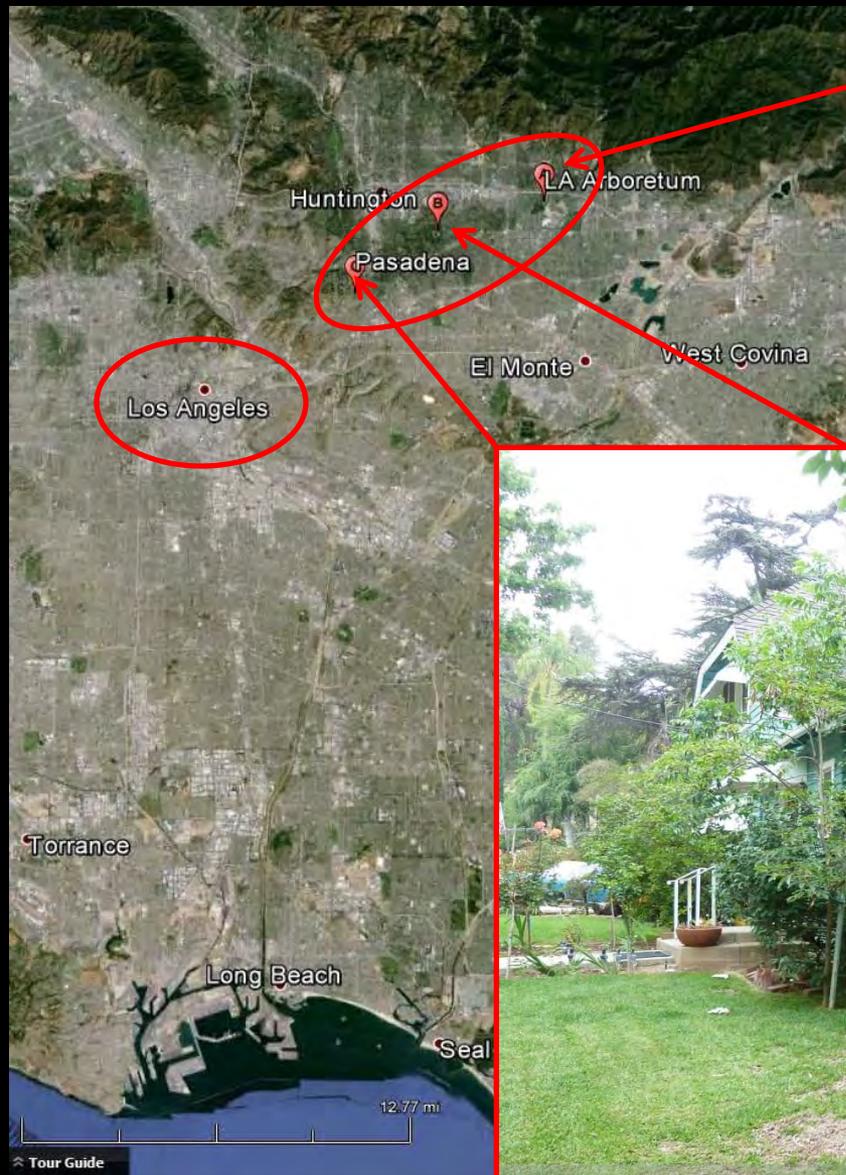
BMSB detection
BMSB reported home invasion

12.11 mi

Image Landsat
© 2013 Google
Data LDEO-Columbia, NSF, NOAA
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth

Imagery Date: 4/9/2013 lat: 33.8960389 lon: -118.0568819 elev: 144 ft eye alt: 43.47 mi



Pasadena Residence

Survey Setup

- 4 Treatments per site
- Control
- 3 lure combinations
 - USDA Lure
 - USDA + P460
 - USDA + Rescue
- Green pyramid trap (AgBio)
- Minimum trap separation distance ~50 ft
- Treatments are rotated monthly to avoid location bias
- Specimens collected in labeled vials and counted in the lab



Damaged fruit (kumkuats)

BMSB previously observed feeding at the Pasadena site



Distribution of Brown Widow Spider in California

Effected counties include:
Shasta, Sacramento, Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange and



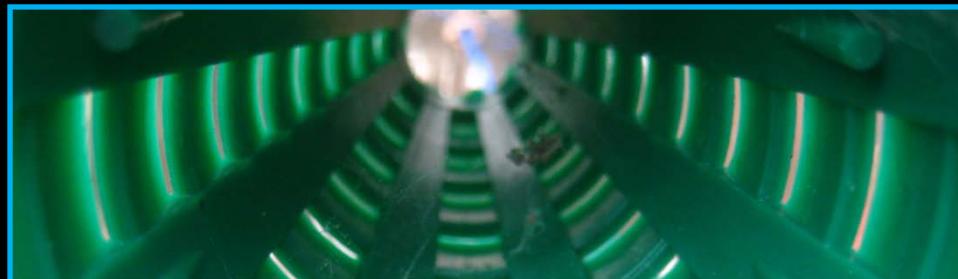
Updated September 2011

UCRIVERSIDE Center for Invasive Species Research



Brown widow egg sacs underneath bark on dying avocado tree





Bagrada Bug

Detected in S. CA in 2008 and is well established



Snails



Ants

Current Survey Results



Los Angeles Arboretum

Pheromone Trap Results

Date	Control				USDA lure only				USDA lure+P460				USDA lure+Rescue			
	BMSB		BG	Other	BMSB		BG	Other	BMSB		BG	Other	BMSB		BG	Other
	M	F			M	F			M	F			M	F		
28-Jun	0	0	0	0	0	0	82	0	0	0	44	0	0	0	17	0
12-Jul	0	0	0	0	0	0	164	3	0	0	95	0	0	0	58	1
6-Aug	0	0	0	0	0	0	4	0	0	0	14	1	1	3	2	0
10-Sep	0	0	0	0	0	0	0	1	0	1	7	1	0	0	5	0
11-Oct	0	0	0	0	0	0	8	13	0	0	3	0	0	0	1	0
21-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Total	0		0		0		258		1		163		4		85	

- BMSB:** So far higher capture numbers with USDA lure+Rescue than other trap types. However, capture numbers are relatively lower than bagrada bug
- Bagrada:** Highest capture number on USDA lure alone than other lure treatments

BMSB = Brown Marmorated Stink Bug
BG = Bagrada bug
Other = Wasp, Flies, Bees

Huntington Gardens

Pheromone Trap Results

Date	Control				USDA lure only				USDA lure+P460				USDA lure+Rescue				
	BMSB		BG	Other	BMSB		BG	Other	BMSB		BG	Other	BMSB		BG	Other	
	M	F			M	F			M	F			M	F			
28-Jun	0	0	1	0	0	0	5	0	0	0	24	1	0	0	0	19	1
12-Jul	0	0	0	0	0	0	6	0	0	0	1	0	0	0	0	0	1
6-Aug	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
10-Sep	0	0	0	0	0	0	0	1	2	0	3	0	4	1	0	0	4
11-Oct	0	0	0	0	0	0	8	1	1	1	1	1	0	0	0	0	1
21-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0		1		0		19		4		31		6		19		

- BMSB:** There is a higher capture number with USDA lure+Rescue than other lure combinations. Still, a very low capture number across traps than bagrada bug.
- Bagrada:** Highest capture number on USDA lure+P460 than other lure treatments.

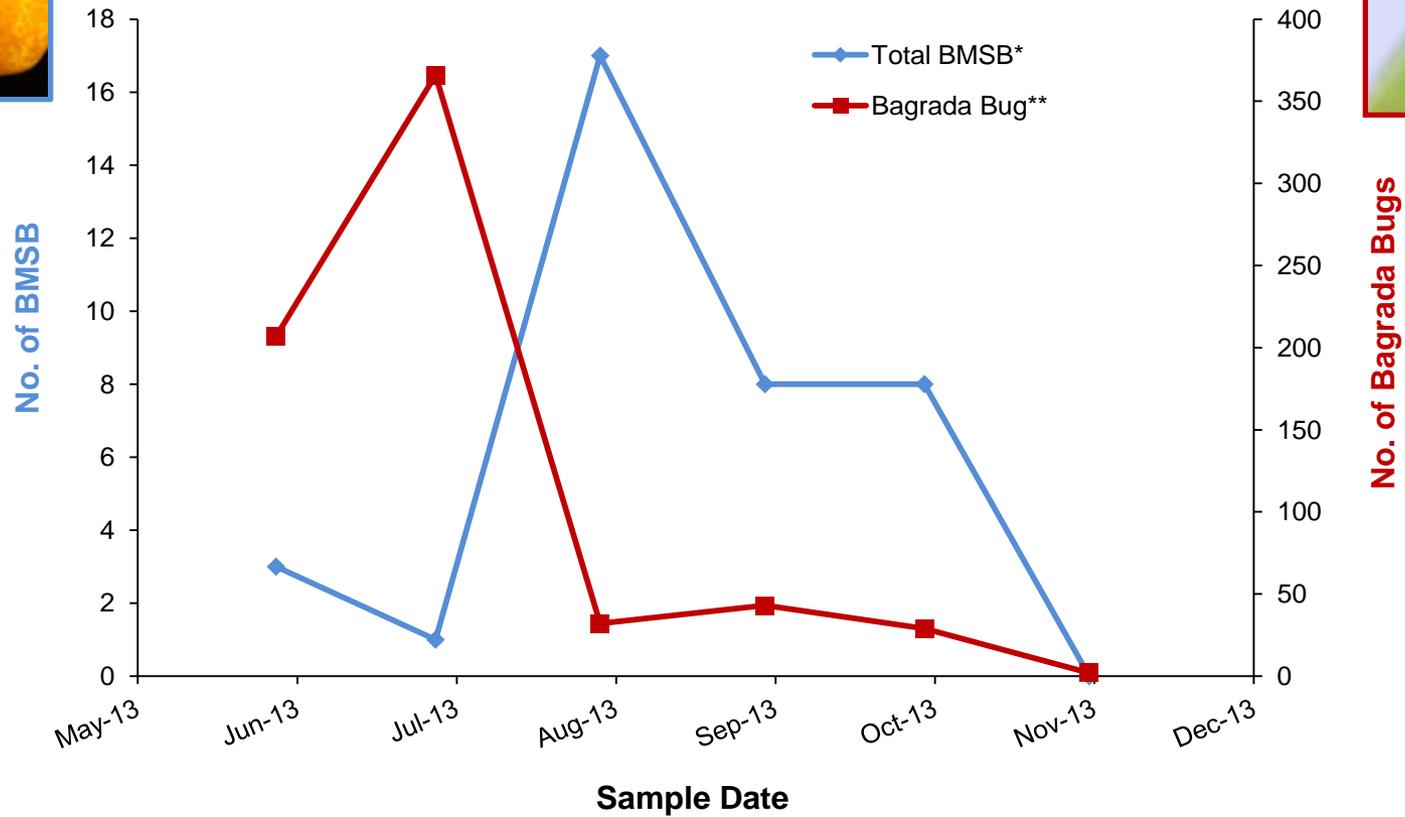
South Pasadena Residence

Pheromone Trap Results

Date	Control				USDA lure only				USDA lure+P460				USDA lure+Rescue			
	BMSB		BG	Other	BMSB		BG	Other	BMSB		BG	Other	BMSB		BG	Other
	M	F			M	F			M	F			M	F		
28-Jun	0	0	0	0	0	0	13	0	0	0	1	0	3	0	1	1
12-Jul	0	0	0	0	0	0	42	0	0	0	0	0	1	0	0	1
6-Aug	0	0	0	0	0	0	0	0	1	1	5	0	3	7	5	1
10-Sep	0	0	0	0	0	0	27	0	0	0	1	0	0	0	0	0
11-Oct	0	0	0	0	0	0	0	0	1	1	0	1	1	3	8	0
21-Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0		0		0		82		4		7		18		14	

- BMSB:** Still an overall low capture number but highest with USDA lure + Rescue. This is consistent with what we've seen at the other sites.
- Bagrada:** Highest capture number with USDA lure only compared to other lure treatments.

Pooled Trap Captures



*BMSB: 37 individuals, 18M and 19F

**Bagrada: 679 individuals

Conclusions

- Results are preliminary but highest total capture of BMSB so far has been with USDA lure + rescue; further surveying is still needed
- Similar number of both BMSB sexes have been found
- There is some underestimation in the number of stink bugs trapped due to predation (spider, ants)
- The well established bagrada bug has been detected in great numbers; highest capture has been with USDA lure alone & lure with P460

Thank you

