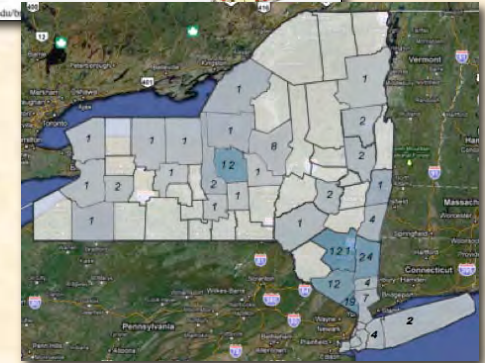
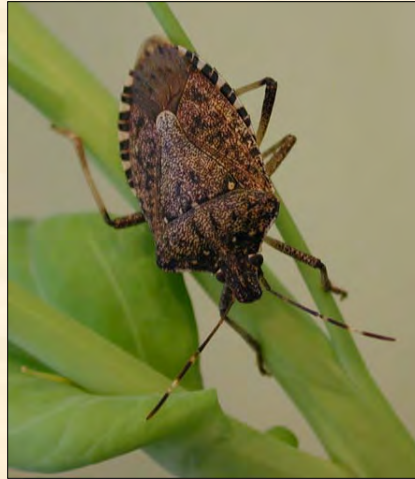


Citizen Science

Surveying the Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål), in New York State



IPM BMSB Working Group Meeting
June 12-13, 2012
Carrol County Extension Center
Westminster, MD

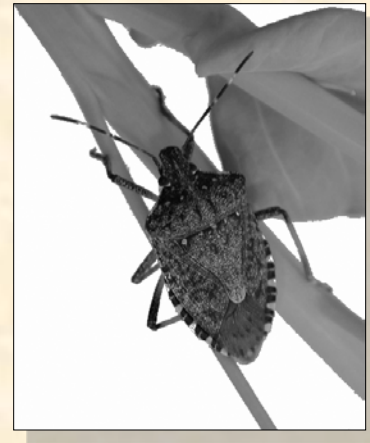
Peter Jentsch
Senior Extension Associate – Entomology





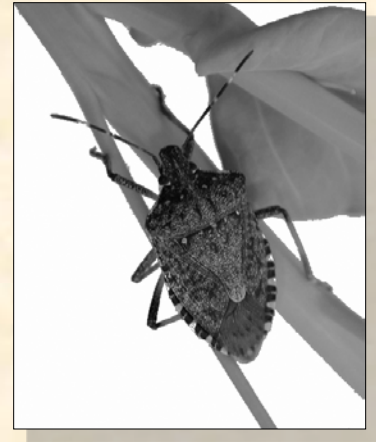
Citizen Science?

- Creating & developing a working relationship with the public toward a science based common goal.
- **Observational** in nature (Audubon)
- Method to **collect and verify** observational data from remote or often inaccessible locations (distance, privacy, funding / manpower resources) to the scientist.





Citizen Science?

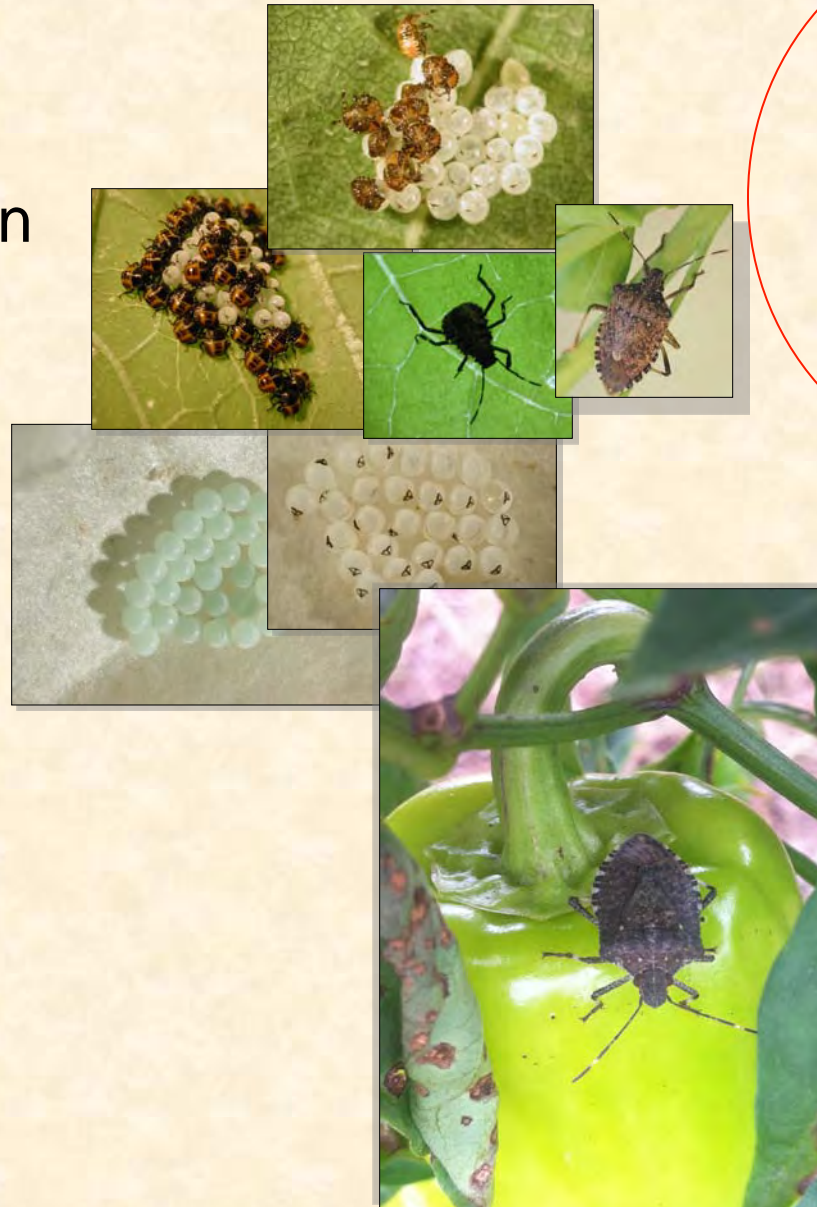


- Creating & developing a working relationship with public toward a science based common goal.
- **Observational** in nature (Audubon)
- Method to **collect and verify** observational data from remote or often inaccessible locations (distance, privacy, funding / manpower resources) to the scientist.
- **BMSB: Ideal candidate for a citizen science project**
 - Homeowner experiencing the ‘in your face’ urban pest
 - Non-threatening, easy to catch and a pleasure to send off to someone who ‘cares’ and trying to solve the ‘problem’
 - Human element...people need to talk about their problems



Citizen Science?

- **Requirements:**
Specimen identification



Citizen Science?



- **Requirements:**

Specimen identification

Data management

Date	Name	Address	Zip	BMSB	Other	Phone / Com	e.mail		
24-Oct	Lindsay Tiballi	Phelps, NY		?		iPhone	lrtiballi@gmail.com		
24-Oct	Mark Rabe	Lee Center, NY		No	WCSB	Computer	mrabe@twcny.rr.com		
24-Oct	3153993684	Chittenango, NY		No	WCSB	Verizon Wireless video			
24-Oct	Judy Freshour	West Monroe; Oswego Coun		No	WCSB	Blackberry	jjfreshour@yahoo.com		
23-Oct	Fred Saxton	Winchell Road west of Syrac		Yes		iPhone 3	fsaxton@twcny.rr.com		
23-Oct	Carol Sanzone	East Syracuse, NY (zip 1350		Yes		camara	csanzone@twcny.rr.com		
23-Oct	jeremy farr	Westvale , NY 13219		Yes		camara	jfarr315@gmail.com		
23-Oct	Matthew Cedar					camara	m.cedar@gmail.com		
30-Nov	Danielle [motykad	Dewitt, NY		Yes		iPhone 4S	Danielle [motykad@verizon.net]		
1-Dec	Susan Limongello	31 international blvd. Brews		Yes		iPhone 4S	[slimongello@optonline.net]		
3-Dec-11	Susan Jensen	80 Dykeman Road, Carmel, NY		Yes		Canon PowerShot	[srjensen1@verizon.net]		

Citizen Science?



- **Requirements:**

Specimen identification

Data management

Communication with media / reporters

Daily Freeman
Serving the Hudson Valley since 1871

Send us your stink bugs, agency says

Published: Friday, March 11, 2011

Tweet 4 Digg 0 Recommend 82 share

KINGSTON — The Cornell Cooperative Extension of Ulster County wants your stink bugs.

Specifically, the agency is working to track the Brown Marmorated Stink Bug, which invaded the Hudson Valley in 2008 after first arriving in North America from Asia seven years earlier.

The stink bugs, which get their name from the brown marbeling pattern on their exteriors, can damage agricultural crops and become a nuisance when they try to move inside buildings for the winter months.

Cornell Cooperative Extension hopes to collect, verify and document the spread of this invasive species as a way to help residents and agricultural producers understand the stink bug and lessen its impact.

Anyone who has seen this pest is asked to send a sample to Cornell Cooperative Extension. The bugs should be placed in a small plastic container, such as a medicine bottle or film canister, and a submission form from the extension's website (<http://hudsonvf.cce.cornell.edu/bmsb1.html>) should be filled out.

Mail samples to Peter Jentsch, BMSB Project, Cornell Hudson Valley Lab, P.O. Box 727, Highland, N.Y. 12528.

Live specimens will be added to the research colony being created for the Eastern New York Brown Marmorated Stink Bug Project, which began last year.

[Click to enlarge](#)

1 See Full Story

Citizen Science?



- **Requirements:**

Specimen identification

Data management

Communication with media / reporters

Newspapers generate public interest

Web based: generates informational spontaneous generation

POLL: Are you seeing stink bugs in your area?

Yes

688 (90%)

No

69 (9%)

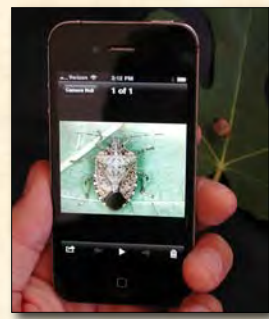
Total votes: **757**

[Vote!](#)

This is not a scientific poll.



- *Article submissions* to regional ‘newspapers’
 - Print to digital web based news
 - Facebook: CCE throughout NYS / 4H
 - LoHUD (NYC, Westchester, Putnam, Orange Co’s)
 - 15 publications 3 live TV News broadcasts (13WHAM)



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AG PROFESSIONAL
 DISSEMINATING KNOWLEDGE

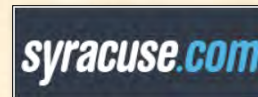
Home > Newsroom > Cornell University researchers attack a stinker of a pest: the brown marmorated stink bug

Cornell University researchers attack a stinker of a pest: the brown marmorated stink bug

Source: Cornell University | October 19, 2011

ShareThis

AgProfessional Magazine



Wednesday, October 19, 2011 As of 3:01 AM New York 66° | 56°

THE WALL STREET JOURNAL | **NY AP TOP NEWS**

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Cornell asks citizen scientists to report bugs

Oct. 19, 2011, 3:01 a.m. EDT
 AP

INSIDE
 AP News »

GENEVA, N.Y. (AP) — Agricultural researchers at Cornell are asking for the public's help tracking an invasive stink bug that's quickly becoming a serious farm pest.



Citizen Science?



- **Requirements:**

Specimen identification

Data management

Communication with media / reporters

public

Cornell University Cooperative Extension
HUDSON VALLEY REGIONAL FRUIT PROGRAM

ENY BROWN MARMORATED STINK BUG PROJECT

The Brown Marmorated Stinkbug (*Halyomorpha halys* (Stål)) (Hemiptera: Pentatomidae) is an invasive species that made its way from Asia to North America and was first officially documented in Allentown, PA in 2001 (it probably arrived several years earlier). The insect has spread across a number of Eastern US States, and its presence has now been documented in Oregon and California, as well. The species was first documented in NY in the Hudson Valley Region in 2008. We currently do not know the size or distribution of this pest in NY, but reports of sightings increased during 2010.

Brown Marmorated Stink Bugs (BMSB) can be a nuisance outside the growing season as they congregate on and inside buildings looking for winter shelter. More significantly, they are now known to be aggressive pests of agricultural crops and caused significant damage to commercial fruit plantings in the Mid-Atlantic States during the 2010 growing season. Loss of more than 80% of the crop was reported in some West Virginia apple and peach orchards during that year. We have yet to document crop losses from this pest in our area.

The ENY-Brown Marmorated Stink Bug Project began in 2010 to address the potential impact this invasive species could have on NYS commercial agricultural commodities while documenting its pest status in the urban environment. The Hudson Valley Region, along with Metropolitan NY and Long Island may currently be the leading edge of the population expansion. By monitoring several agricultural commodities in the region, collecting, verifying and documenting the population spread along the agricultural-urban interface, we hope to assist residents and agricultural producers alike in understanding this pest and mediating its impact.

The map at right shows our current knowledge of the documented distribution of Brown Marmorated Stink Bug in Eastern NY. You can

Brown Marmorated Stink Bug (BMSB) Sample Submission Form

Fill out this form, print it and mail it with your sample. Provide complete information so we can map the distribution of this insect AND let you know if your sample contained any BMSB. Live specimens will be added to the research colony being established for the project (we cannot return any samples).

First Name _____

Last Name _____

Address, Line 1 _____

Address, Line 2 _____

City _____

State _____

ZIP _____

Phone _____

E-mail _____

Where did you find the bug?

House exterior	<input type="checkbox"/>
House interior	<input type="checkbox"/>
Inside Attic/Garage	<input type="checkbox"/>
Fruit Trees	<input type="checkbox"/>
Ornamental plants	<input type="checkbox"/>
Vegetable Garden	<input type="checkbox"/>
Other plant material (outside)	<input type="checkbox"/>
Other (describe) _____	<input type="checkbox"/>

Date Collected _____

Mail samples and forms to:
Peter Jentsch, BMSB Project, Cornell Hudson Valley Lab, P.O. Box 727, Highland, NY 12528

- Web based
- Form letters
- Phone
- Visits
- 'House calls'

Citizen Science?



- **Requirements:**

Specimen identification

Data management

Communication with media / reporters

public

Greetings

Thank you for your interest to the citizen science program and image.

I believe this is a **Western Conifer Seed Bug**, recognized by the expanded hind leg tibiae.

Exclusion techniques such as caulking to opening in siding, fascia, roof vents may help keep them out of the house.

Here is the link to information on BMSB look-a-likes, that include native stink bug. The title of the article is 'Fall 2011 Brown Marmorated Stink Bug Update in New York State: Harvest Alert'

<http://hudsonvf.cce.cornell.edu/bmsb1.html>

The site also includes a printable form if you would like to send us a specimen in this link.

All the best

Peter



Citizen Science?



- **Requirements:**

Specimen identification

Data management

Communication with media / reporters

public & stakeholders

recordonline.com
TIMES HERALD-RECORD

NEWS | SPORTS | COMMUNITY | BUSINESS | MULTIMEDIA | OPINION

Farmers wage war on stink bugs

14 NY counties already hit by insect invaders

Photo 1 of 2 | Zoom Photo + [BUY PHOTO](#)



With 50 acres of tomatoes, as well as other organic crops, Amy Hepworth of Hepworth Farms in Milton is worried about stink bugs. An experimental "bait" crop of soybeans serving as a natural fence will hopefully keep the invasive insects away from other plants.

JEFF GOULDING/Times Herald-Record

By Adam Bosch
Times Herald-Record
Published: 2:00 AM - 06/27/11



Citizen Science?



- **Data: Live specimens or images**

65% 'live' submissions

35% images or video submissions

98% Urban or 'household' submissions

>1% Landscape, garden & orchard submissions

Monitoring the Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål) in New York



Submissions from Urban 'survey' in 2010-11 (11 /14/ 2011)

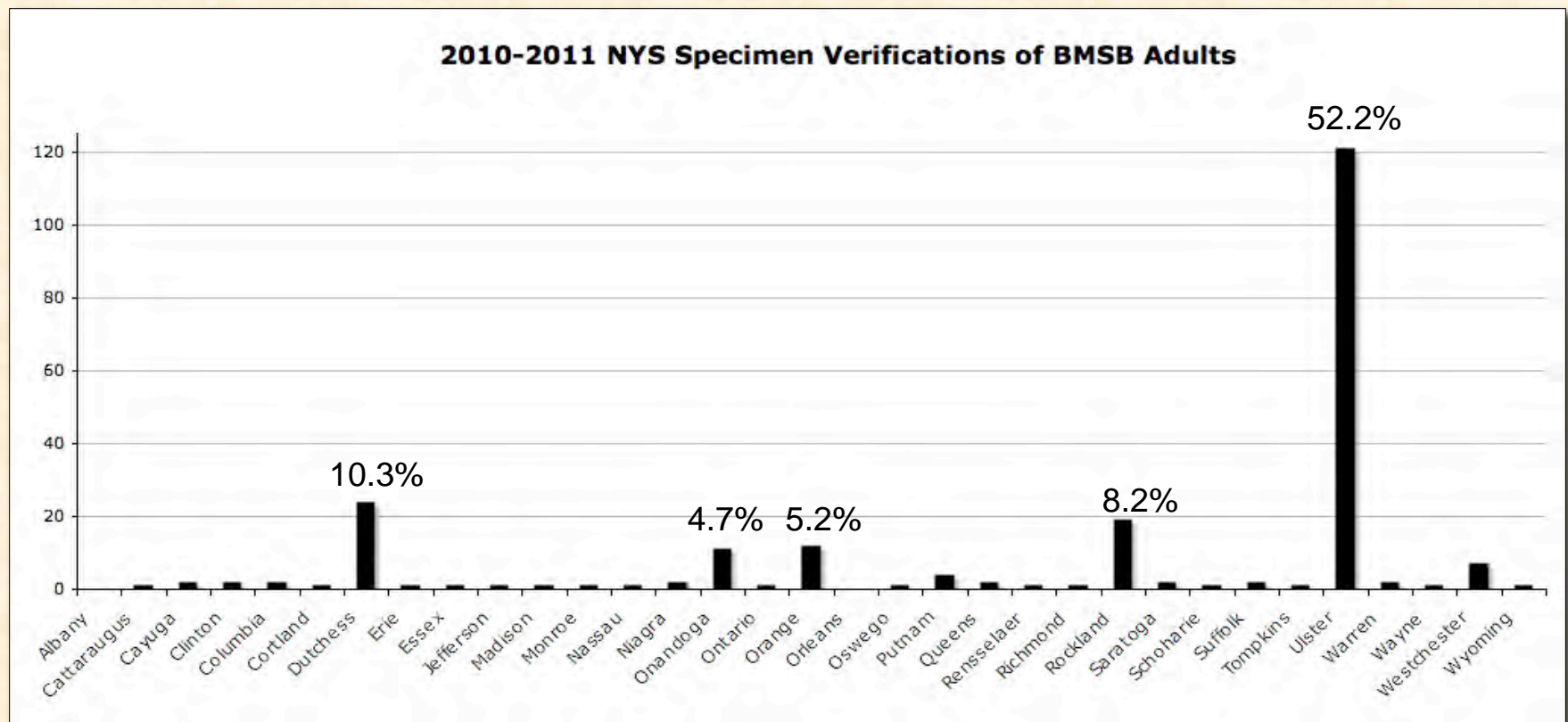
232 'live' submissions (Hudson Valley Region)

460 specimens received

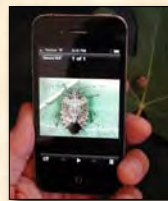
87 distinct zip codes

90.6% confirmed BMSB

33 NYS counties



Monitoring the Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål) in New York



Citizen Science Submissions 'iPhone press release' fall 2011

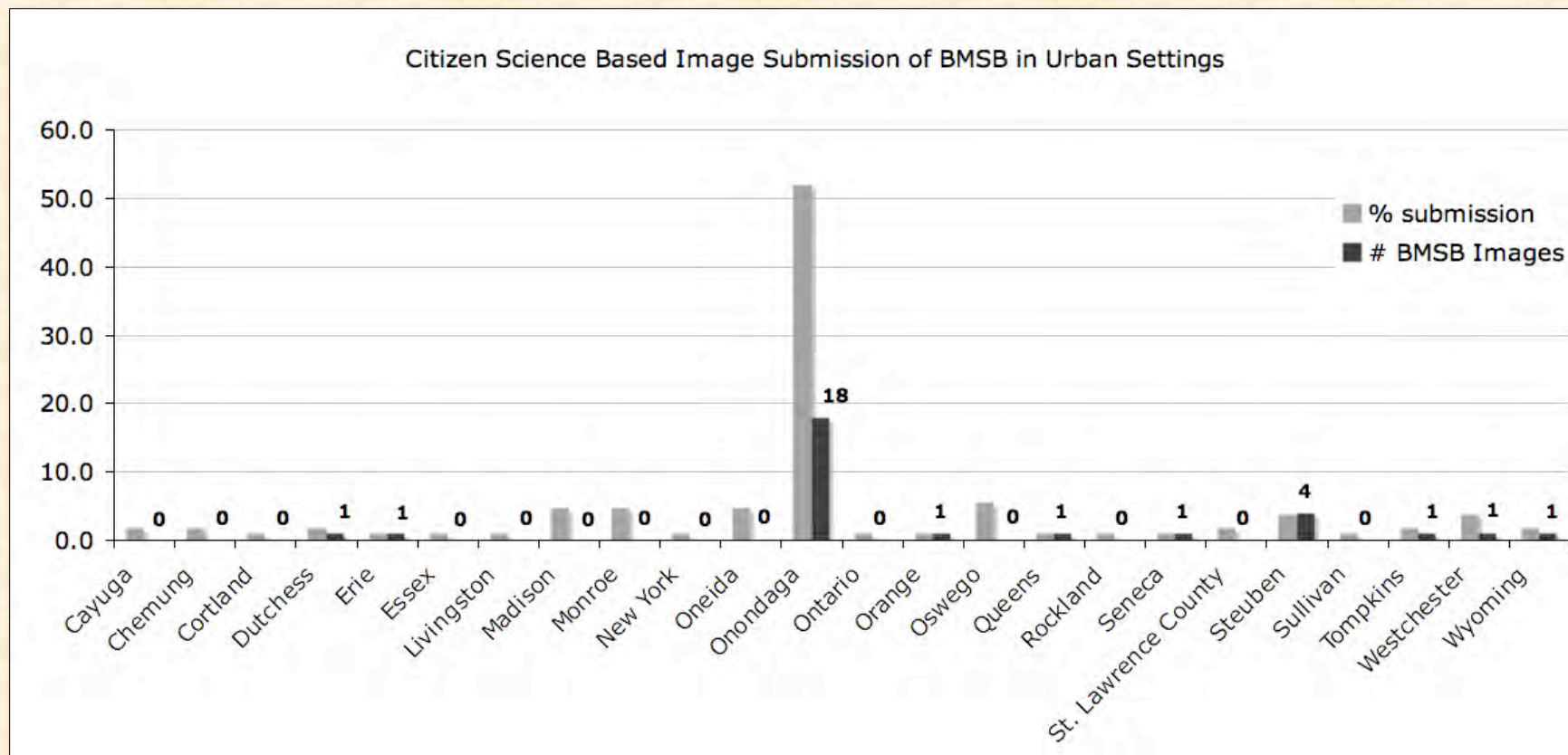
126 submissions CNY; WNY

67 distinct zip codes

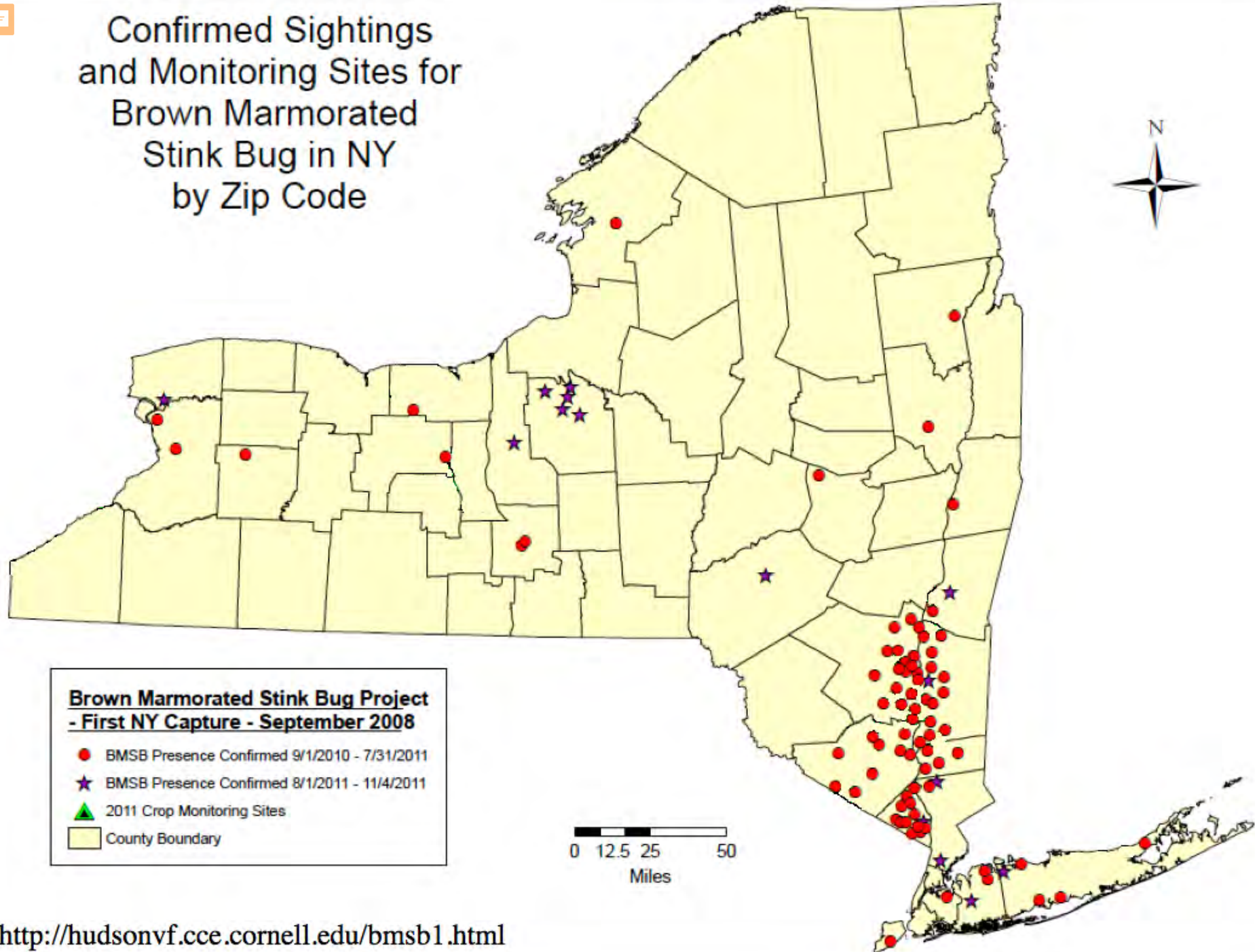
73 'image' specimens received

24 NYS counties

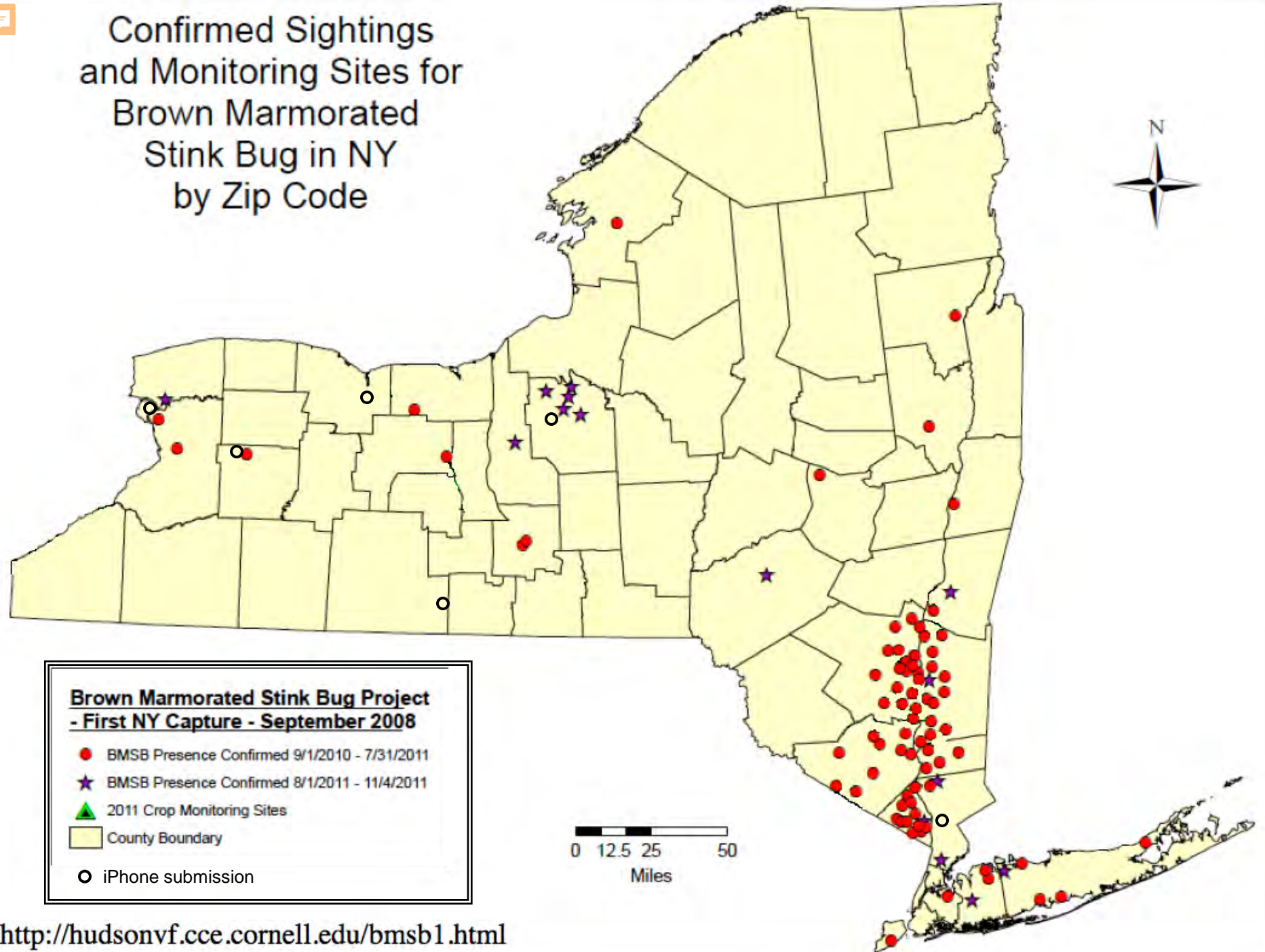
71.0% confirmed BMSB



Confirmed Sightings and Monitoring Sites for Brown Marmorated Stink Bug in NY by Zip Code



Confirmed Sightings and Monitoring Sites for Brown Marmorated Stink Bug in NY by Zip Code

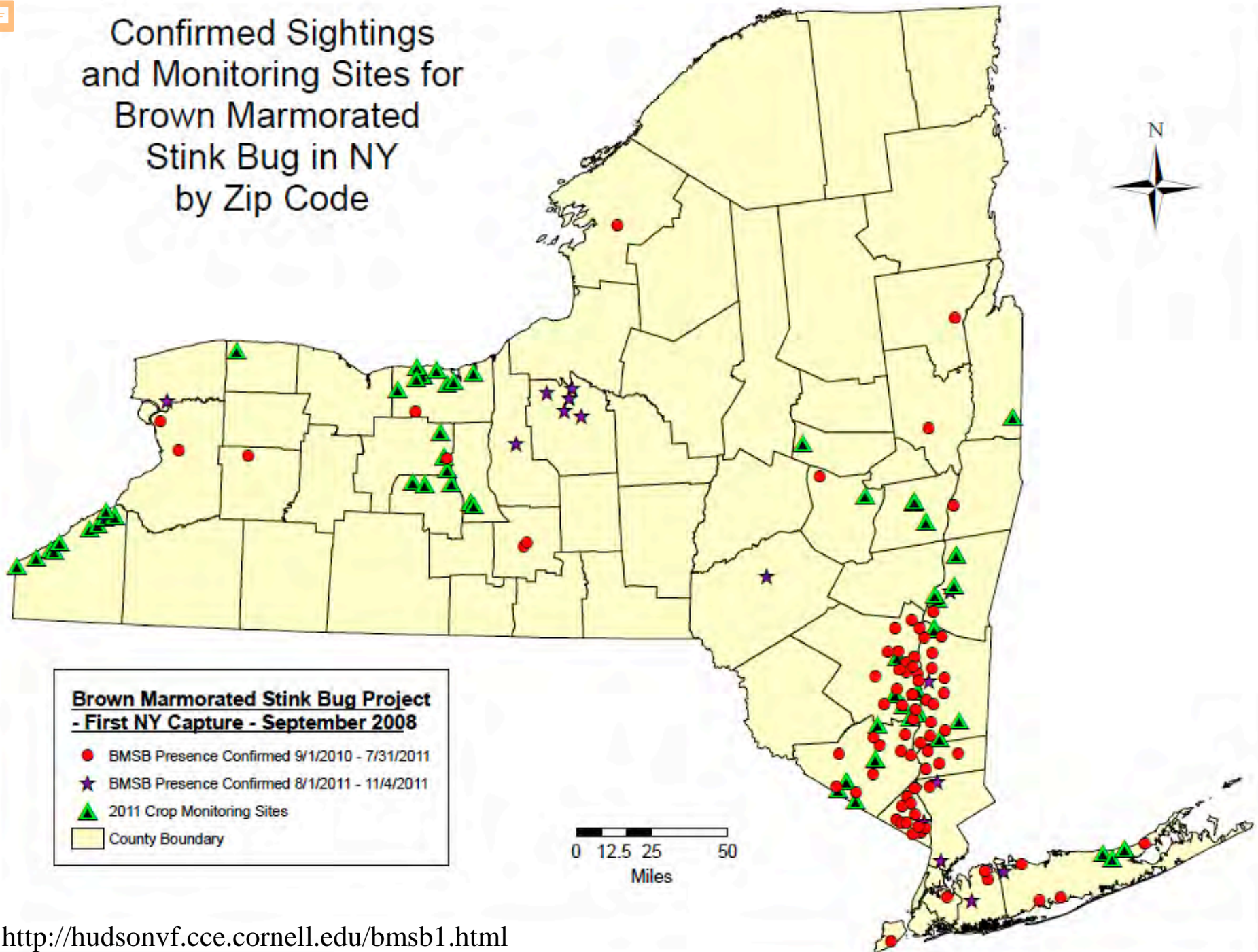


Brown Marmorated Stink Bug Project
- First NY Capture - September 2008

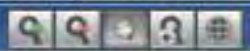
- BMSB Presence Confirmed 9/1/2010 - 7/31/2011
- ★ BMSB Presence Confirmed 8/1/2011 - 11/4/2011
- ▲ 2011 Crop Monitoring Sites
- County Boundary
- iPhone submission

0 12.5 25 50
Miles

Confirmed Sightings and Monitoring Sites for Brown Marmorated Stink Bug in NY by Zip Code



Zoom | Query | Layers



Zoom

Query

Species Distribution Legend

Featured Species

Animal Insect Plant All

By Common Name
Brown Marmorated Stink Bug

By Scientific Name
Halyomorpha halys

Request an account to see more species

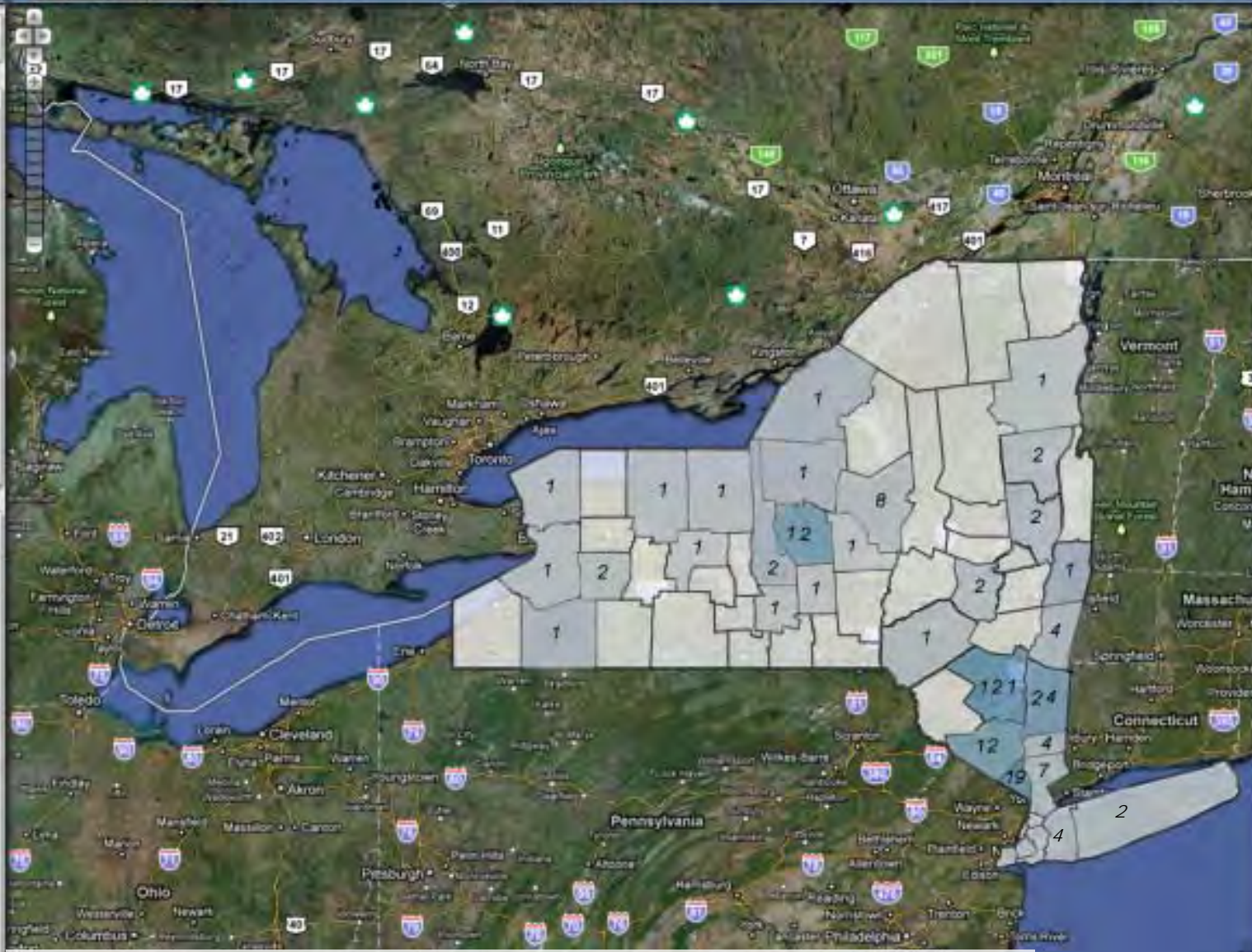
Layers County Watershed PRISM

Layers

- Base Layer**
- Google Hybrid Layer
 - Google Streets Layer
 - Google Terrain Layer
 - Google Aerials

Overlays

- Map Overlay Layers**
- Counties
 - EAB Quarantine Zones
 - NADN Boundaries
 - Watershed (HUC 6)
 - Watershed (HUC 8)



Live BMSB specimen submissions



Map Tools

Go

Zoom

Data

By ID

Distribution

Observation Data Source

iMap NYFA

Species

Animal Insect Plant All

By Common Name

Tree-of-heaven, Tree of Heaven, Ct

By Scientific Name

Ailanthus altissima

Layers County Statewide

County Watershed PRISM Hide

Custom Query

Layers

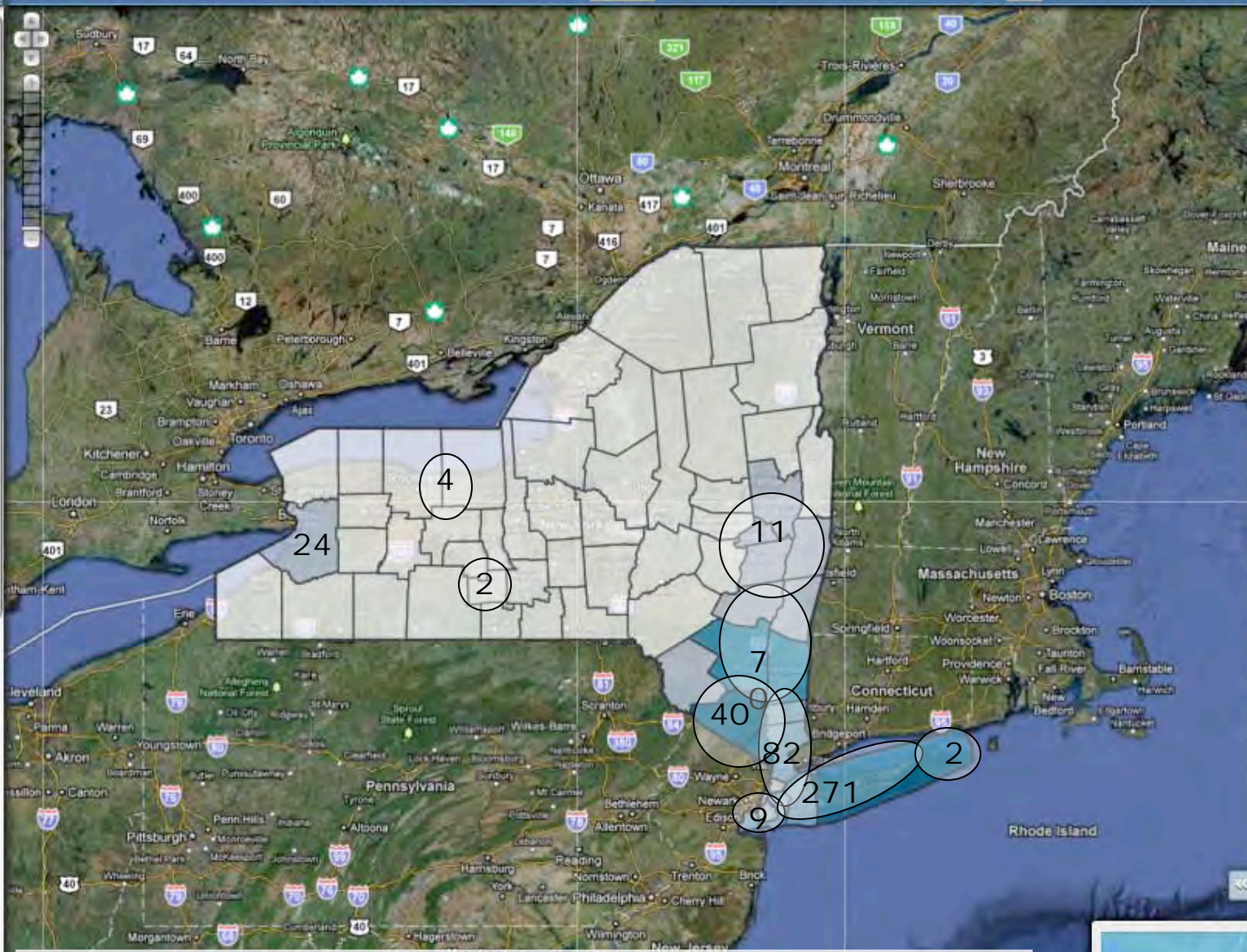
Base Layers

- Google Hybrid Layer
- Google Streets Layer
- Google Aerials
- Google Terrain Layer
- USGS Topographic
- No Base Layer

Overlays

Invasive Species Observations

- Combined
- Partner Data
- NAS
- Confirmed



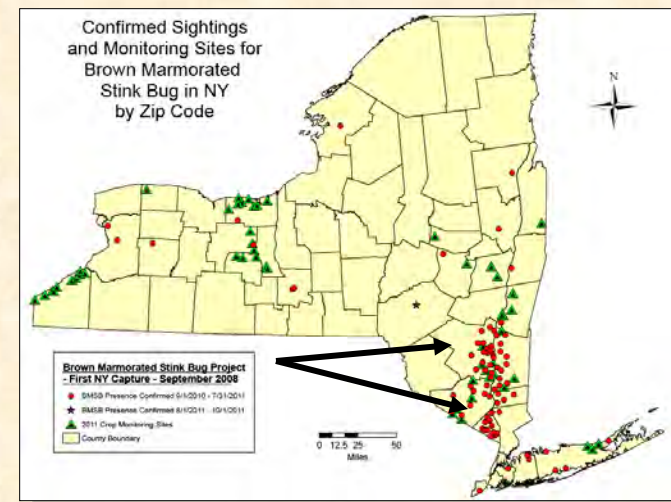
Ailanthus altissima specimen submissions

Value of Citizen Science Based Data

- Observational sightings verified by specimen validation confirmed the urban presence of BMSB in NY even when we did not observe field presence.
- Provided a visual evolving 'pioneer status' for BMSB in NY
- Generated maps allowed us to post BMSB presence for on-demand viewing by the public, stakeholders and granting agencies / university administration
- Data served to develop a point source for relationships & communication to the community, adding depth to the web based 'go to' recourse for broad educational outreach on the insect.
- Springboard for further research

2012 Trap Tree Project – ARDP Funded

- Surveying Alternate Hosts for Presence
- Mapping Host Density
- Monitoring 3 levels; ground, 10' & 50' in 2 sites/farm
- Employing *A. altissima*, Maple, Ash as trap trees beginning post bloom (1 July), using tree injections.



Marlboro & Warwick, NY, Ulster & Orange County



Ailanthus altissima



Fraxinus excelsior



Acer sp. - Red Maple

Support & Acknowledgements

Technical: Henry Grimsland, Allen Clayton, Jordan Gianoforte
Kellyn Will

Funding: Apple Research and Development Project
NYS Ag & Mkts, Hatch

Questions?

