

Phenology and Distribution of Brown Marmorated Stink Bugs

Pear Research Meeting

Feb. 4, 2015

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Brown Marmorated Stink Bug (*Halyomorpha halys*)



Photos: Baldo Villegas



USDA

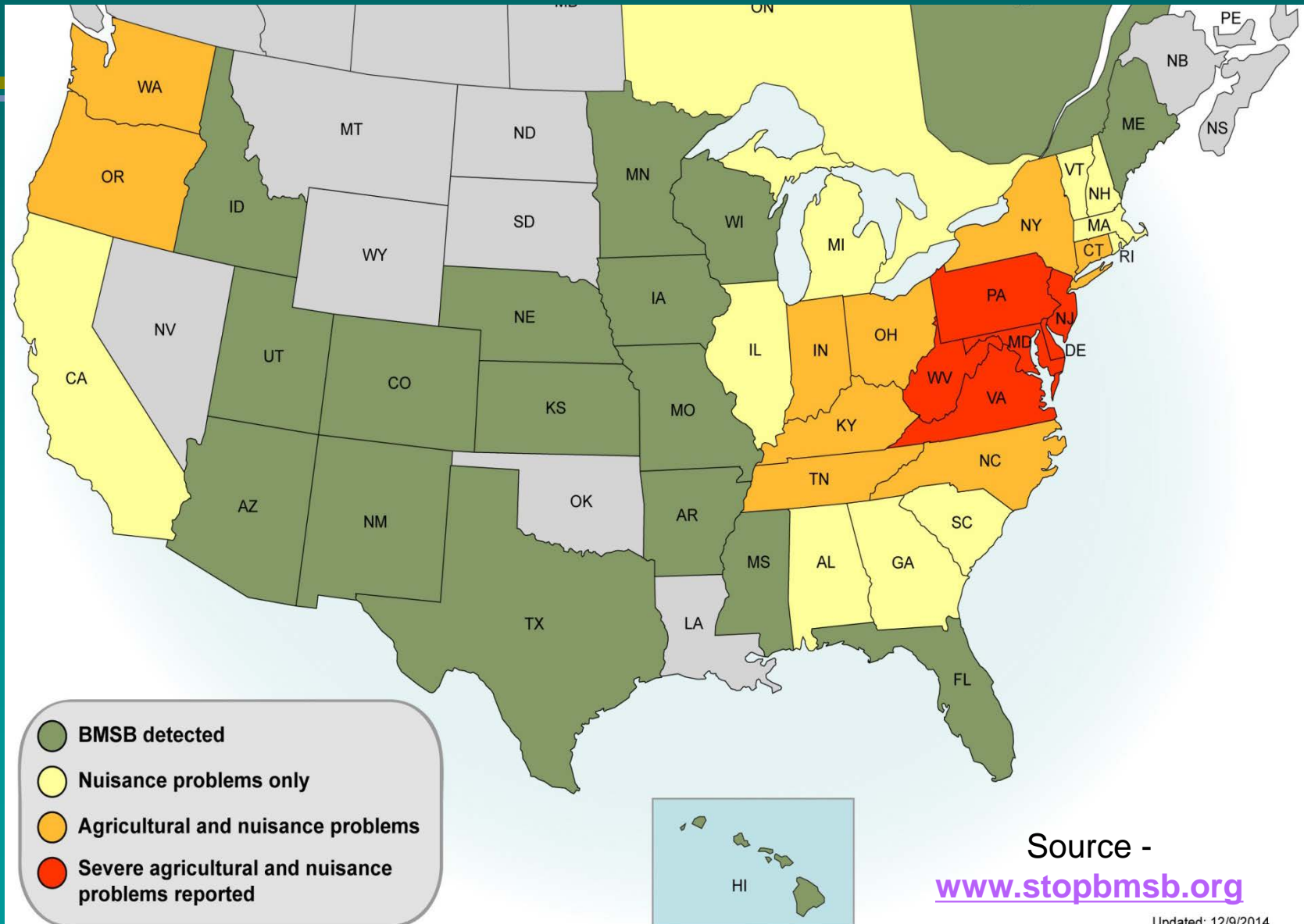
5 Nymphal Instars

Male

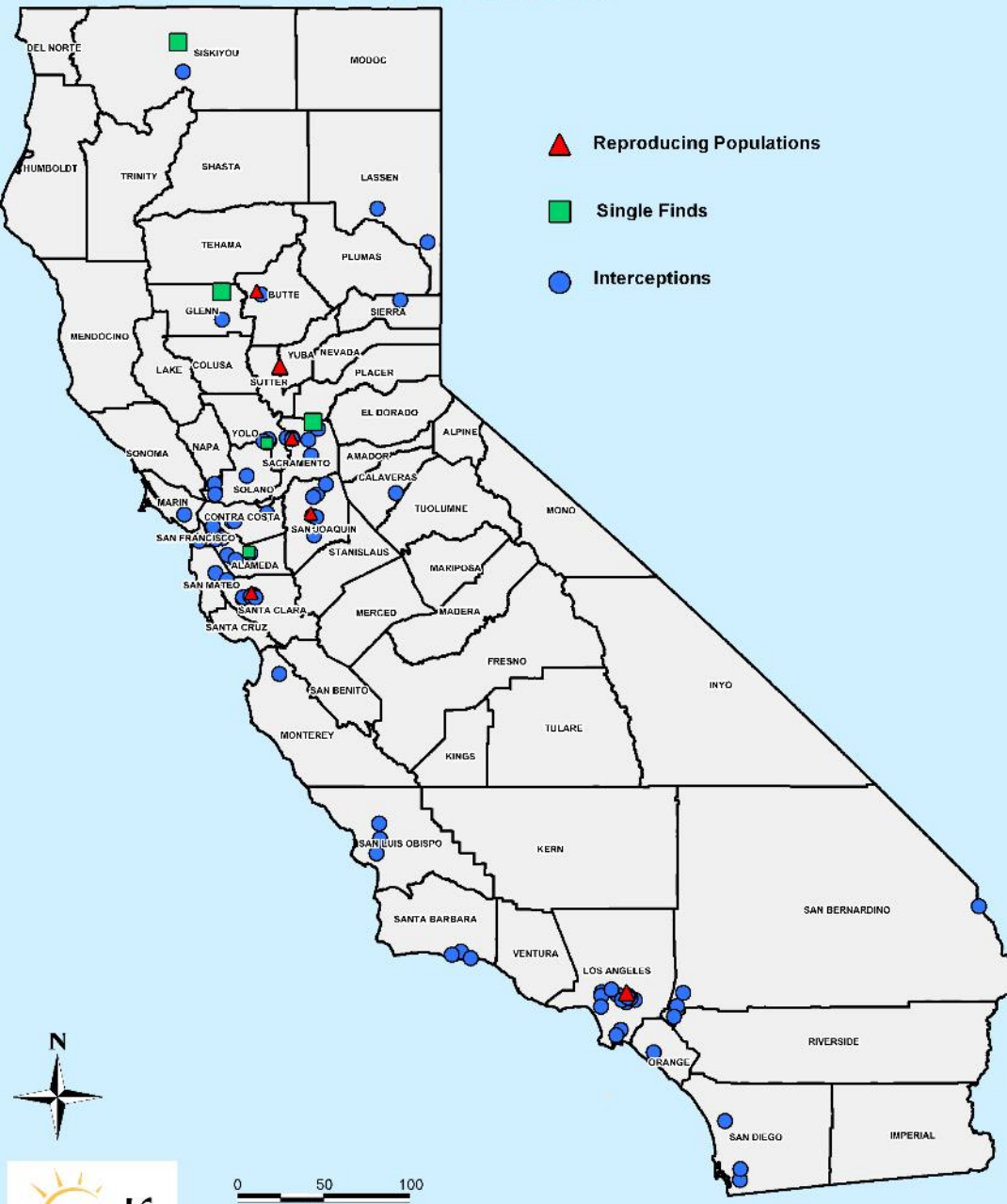
Female

- Each adult lives 6-8 months
- Female can lay about 250 eggs
- ~2 generations in Mid-Atlantic states, 4-6 in southern China; California ???

Current Distribution in the US



BMSB in Calif. 2014

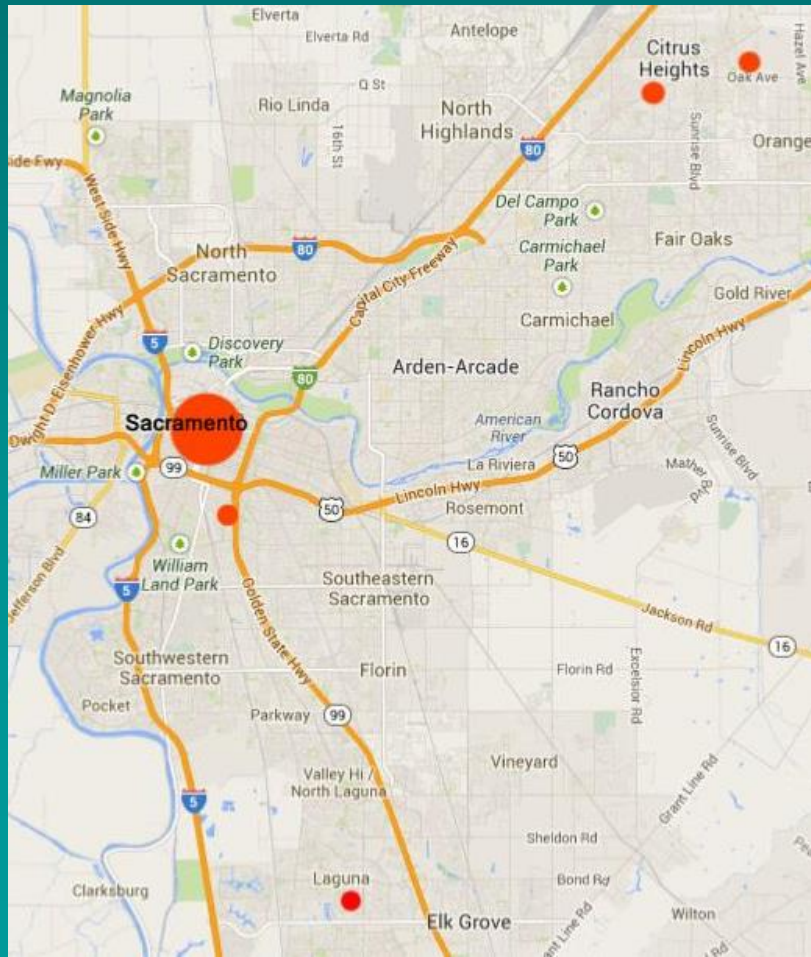


Established
populations in:

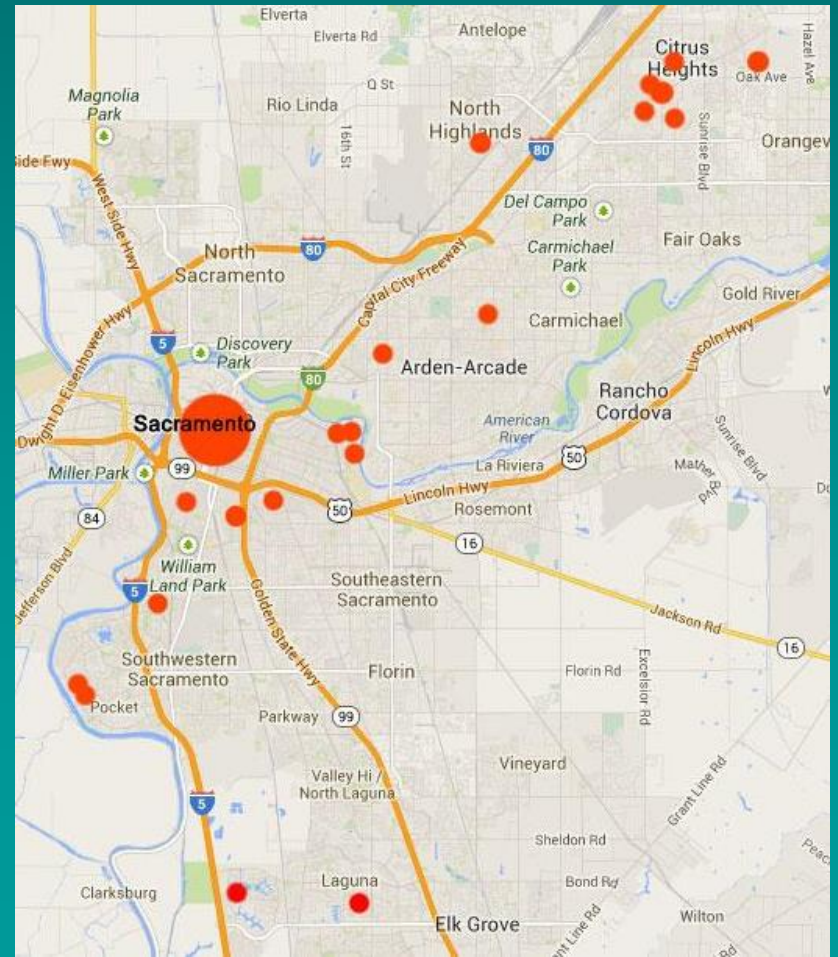
Butte
Los Angeles
Sacramento
San Joaquin
Santa Clara
Sutter
Yolo

BMSB Finds Sacramento County

Jan. 1, 2014



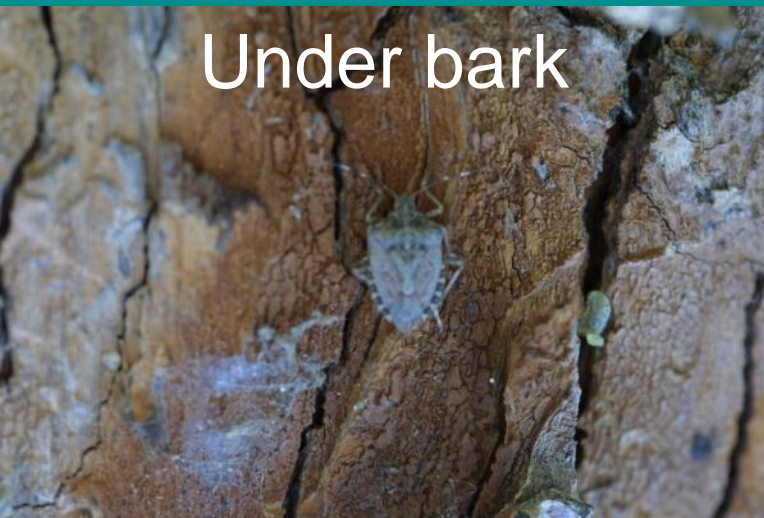
Dec. 31, 2014



Sacramento

March 2014

Downspout



Under bark



Host Plants

Crops

- Stone fruits (esp. peach), pome fruits, citrus, persimmon, fig
- Berries
- Grapes (not a major host)
- Eggplant, tomato, okra, pepper, corn, beans (esp. soy), cucurbits, sunflower

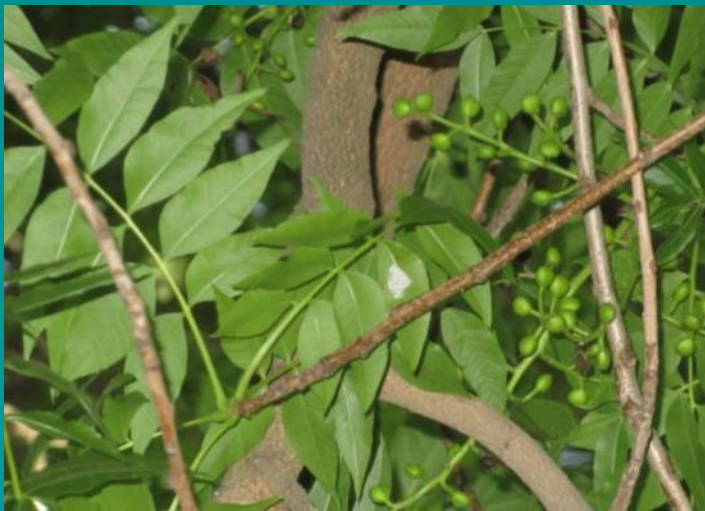
Host Plants

Selected Ornamentals

- Catalpa
- Chinese pistache
- Elm
- Maple
- Holly
- Princess tree
(*Paulownia*)
- Pyracantha
- Redbud
- Rose
- Tree of heaven
- Waxleaf privet

Chinese Pistache

Pistachia chinensis



Charlie Pickett

Trident Maple

Acer buergerianum



Waxleaf Privet

Ligustrum japonicum

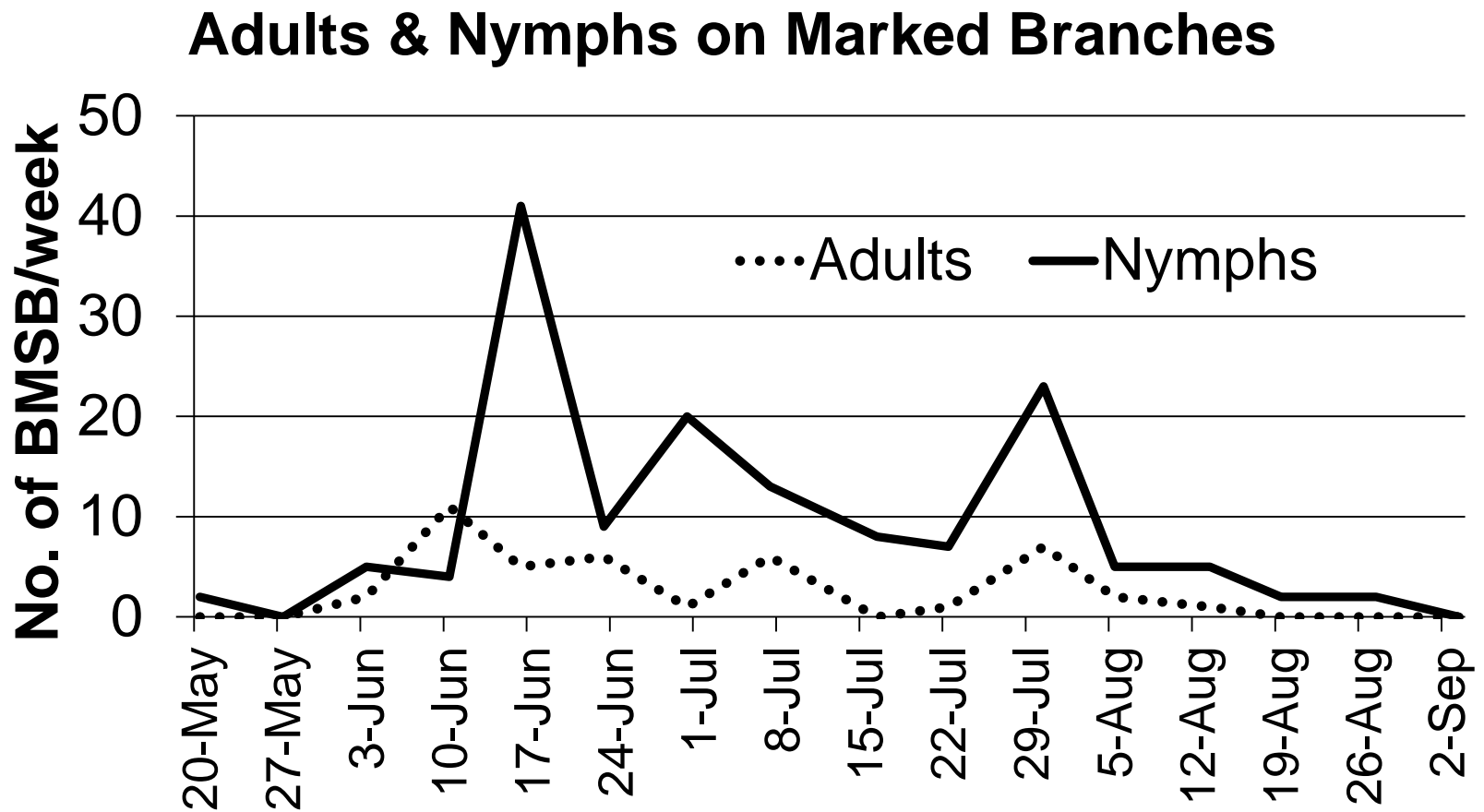


Tree of Heaven

Ailanthus altissima



BMSB Adults & Nymphs on Tree of Heaven



Stink Bug Feeding



Photo: Tracy Leskey



Photo: Jay Brunner



Peach, 5/22

BMSB Damage



Nectarine, 6/3



Asian pear, 7/2



Plum – no damage

Lures (MDT) and Insecticide Strips

Lures:

AgBio Combo lure (6 wks.) – \$7.95

Rescue (2 lures) (9 wks.) – \$10

Vaportape (kill bugs in trap): \$2.85



Phermone Trap

Dead-Inn Traps (AgBio, Inc.)

Grower
48" tall, \$30



Professional
24" tall, \$20



Homeowner
16" tall, \$17



Phermone Traps

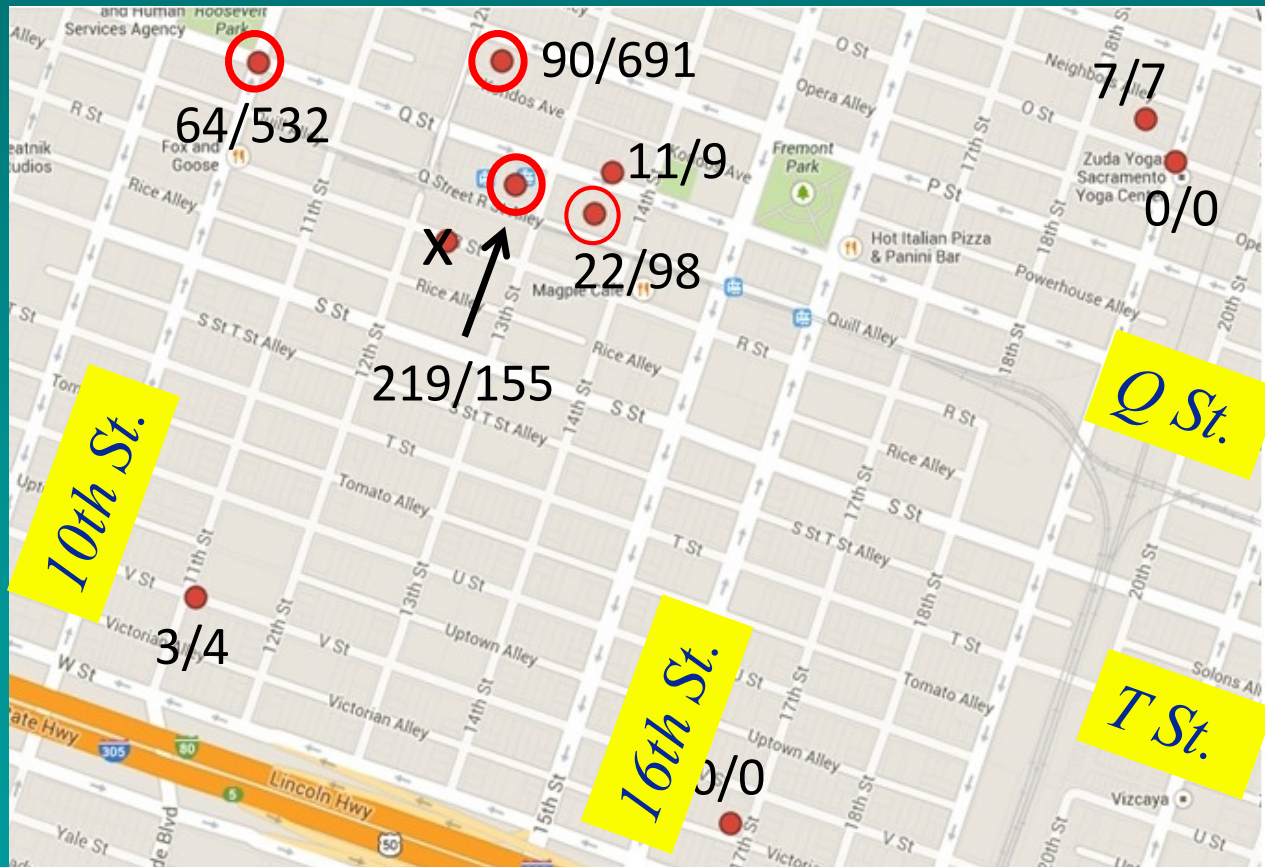
Rocket Trap (Rescue): \$17 each



2014 Trap Locations & Counts

Midtown Sacramento

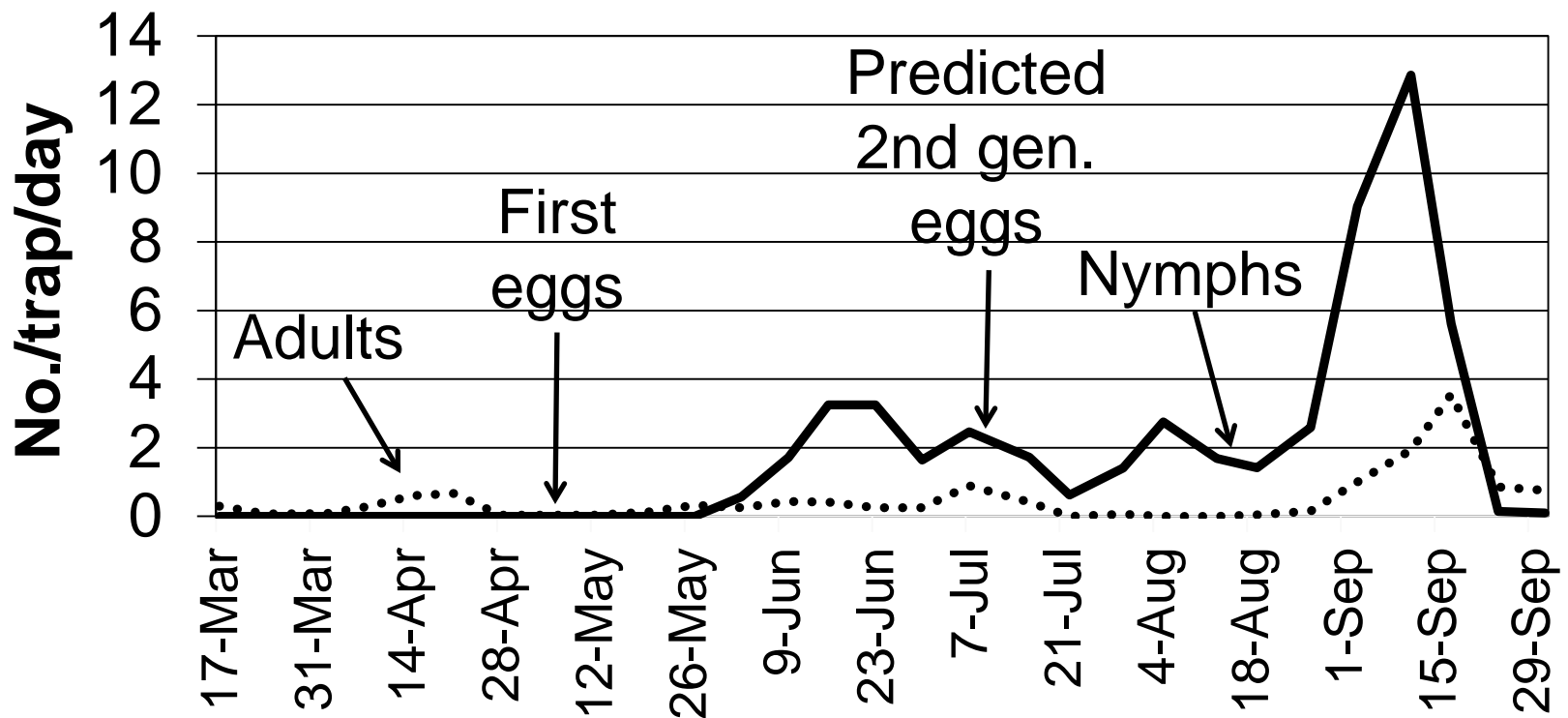
Adults/Nymphs



Adults and Nymphs Trapped Sacramento, 2014

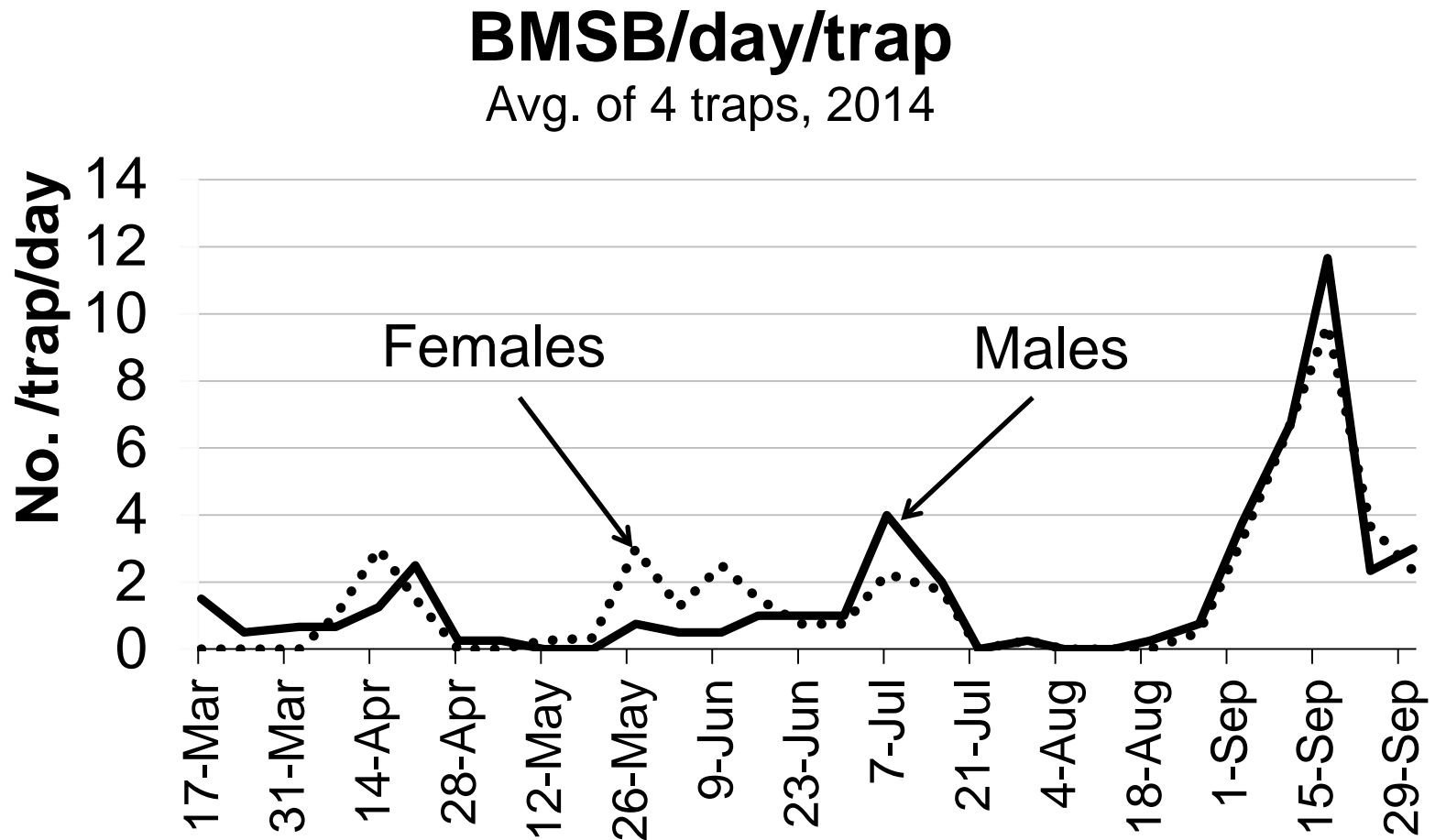
BMSB/day/trap

Avg. of 4 traps, 2014



Male vs. Female BMSB Adults

Sacramento, 2014

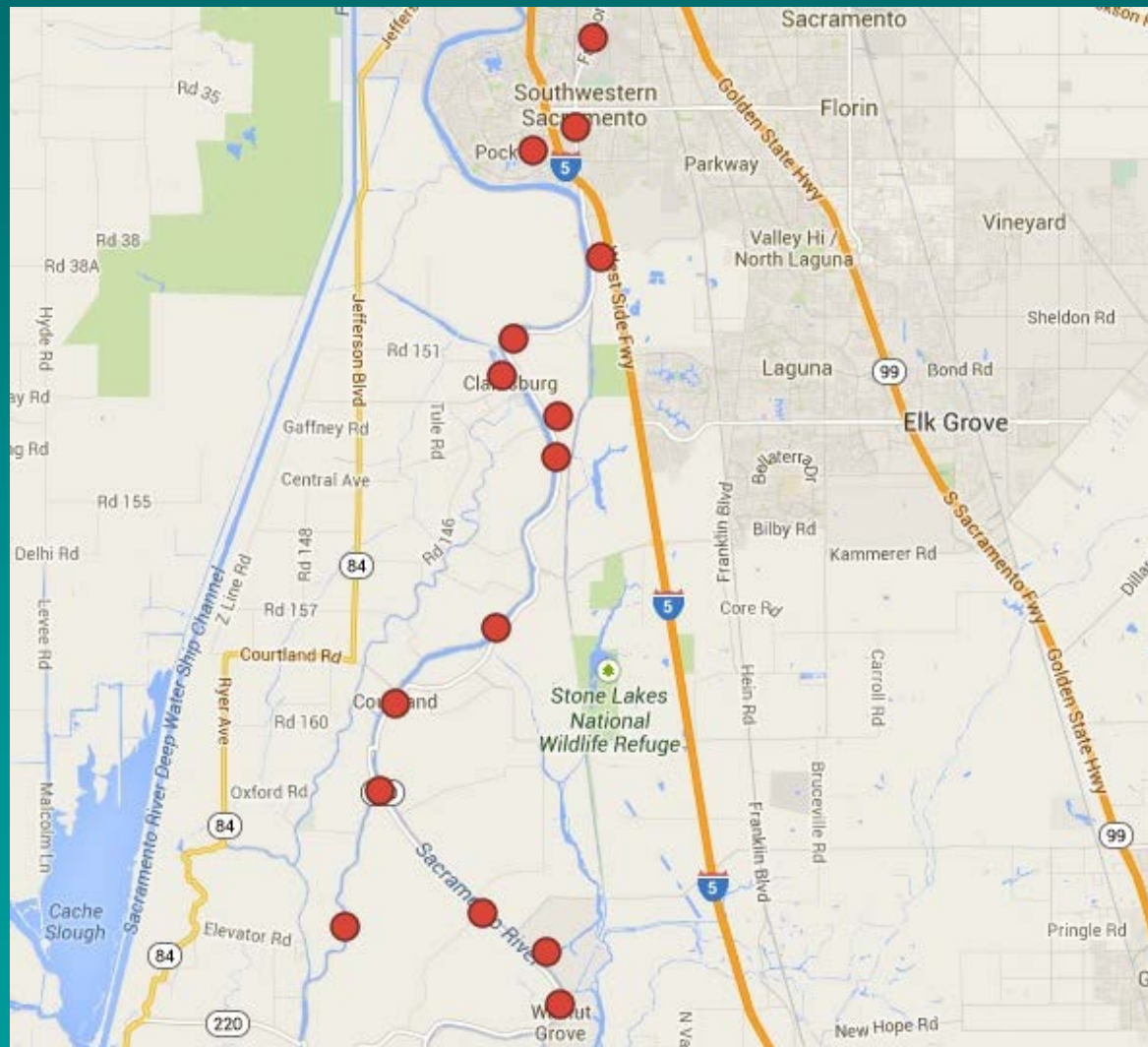


Trap Placement Locations So. Sacramento County, 2014

- South of Sacramento (4)
- Pear orchards near residence of a Sacramento commuter (6)
- Farms that host visitors (5)
 - » Wine tasting, agritourism, schools



Trap Placement Locations So. Sacramento County, 2014



No
BMSB
found

Insecticide Efficacy

Field Study (Leskey et al., 2013)

- High mortality on day of application: Endosulfan (e.g., Thiodan), methomyl (Lannate), thiamethoxam (Actara), and bifenthrin (e.g., Brigade)
- Fenpropathrin (Danitol) and dinetofuran (Venom, Scorpion): strong anti-feeding effect for 7+ days
- Peaches in Mid-Atlantic: 10-12 weekly applications, alternate-row, late May-harvest using pyrethroids and neonicotinoids
- Effective insecticides in lab: only 60% average mortality in the field when applied late early July, 40% in Aug., and 20% in September

BMSB Research on Peaches

Anne Nielsen, Rutgers Univ.

- Sprayed orchard perimeter with insecticides → 75% of adult BMSB were stopped at the edge
- Products and timings that worked well:
 - » Early season: Danitol
 - » Mid-season: Voliam Xpress, Perm-Up Assail
 - » Late July: Actara
 - » Pre-harvest: Actara, Danitol, Lannate, Venerate

2014 Orchard Spray Recommendations

VA, WV, and MD Coop. Extension

- Products that have shown good effectiveness against BMSB include:
 - » Pyrethroids: Baythroid XL (B-cyfluthrin), Danitol (fenpropathrin), Warrior II (Beta-cyfluthrin), products containing permethrin (e.g. Pounce)
 - » Neonicotinoid: Belay (clothianidin)
 - » Carbamate: Lannate (methomyl)
 - » Premixtures: Endigo ZC (Beta-cyfluthrin + thiamethoxam) and Leverage 360 (imidacloprid + cyfluthrin)

Assassin bug



Predators Seen in 2014

Praying mantis



Spiders



Conclusions

- BMSB spread is slow – 4-5 yrs. from 1st intro
- Egg laying begins early May, extends for weeks
- Trapping inefficient in early season
- Check trees in Sept. (maple, pistache, privet, ToH)
- Two generations in Sacto.
- Many products may provide control (think IPM)
 - » Edge spraying may be sufficient
- May not be as severe as in mid-Atlantic states
 - » No neighboring forests, no soybeans
 - » But pears – Old trees, rattail fruit



Questions?



Important Web Sites

StopBMSB.org

ucipm.ucdavis.edu

cesacramento.ucanr.edu