West Region Update

Kent Daane[1], Frank Zalom[1], Jhalendra Rijal[1], Ricky Lara[1], Joanna Fisher[1], Judith Stahl[1], Charles Pickett[1], Mark Hoddle[1], Lori Spears[2], Diane Alston[2], M. Cody Holthouse[2], Zach Schumm[2], & Kate Richardson[2]

[1]University of California & CDFA,
[2]Utah State University

Funding

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Specialty Crop Research Initiative

Collaborating Institutions

ars · NC State University · PennState · OSU Oregon State University · University of Maryland · University of Georgia · Washington State University · Northeastern IPM Center · Cornell University · UtahStateUniversity · Rutgers University · The Ohio State University · University of Kentucky · UC Davis · University of Minnesota · VirginiaTech · Berkeley · Michigan State University · UC Riverside

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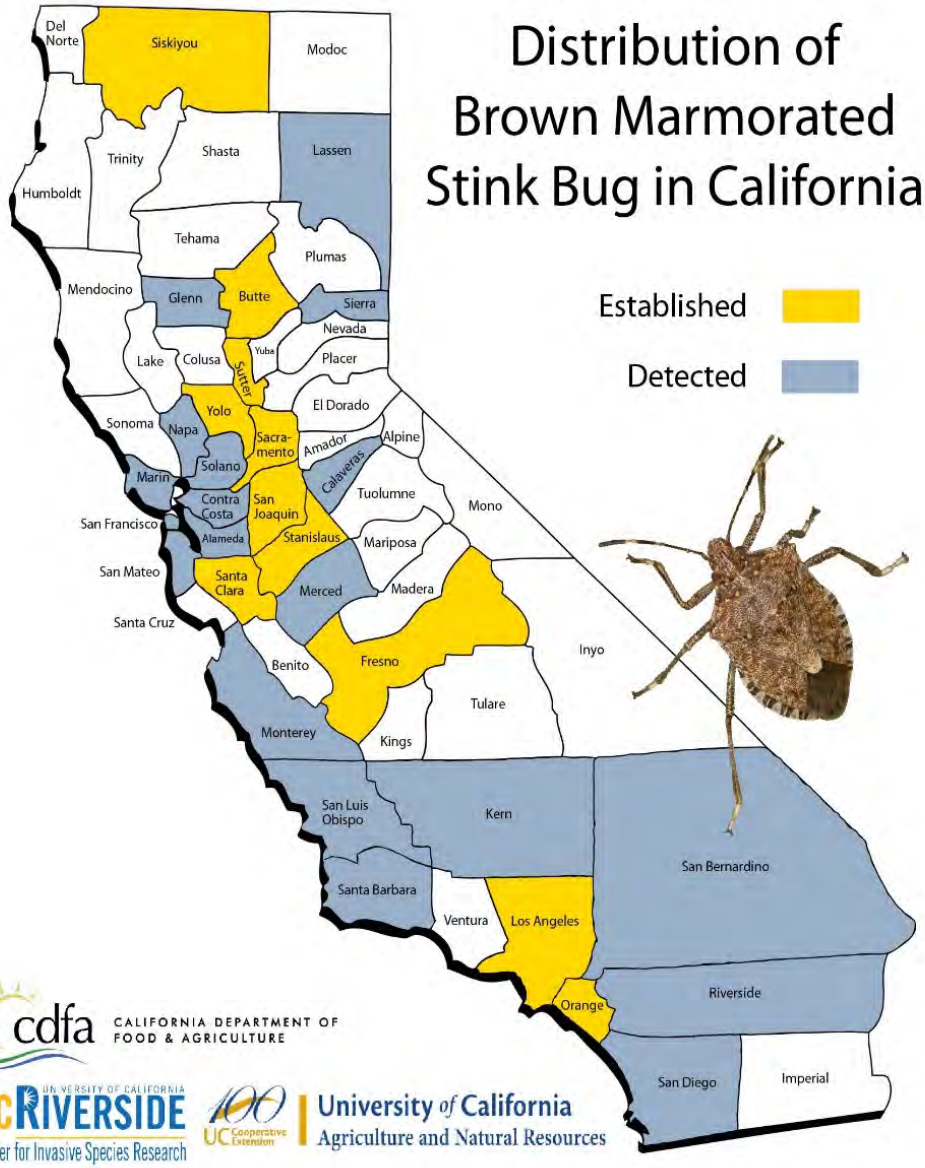
BMSB in California - 2017

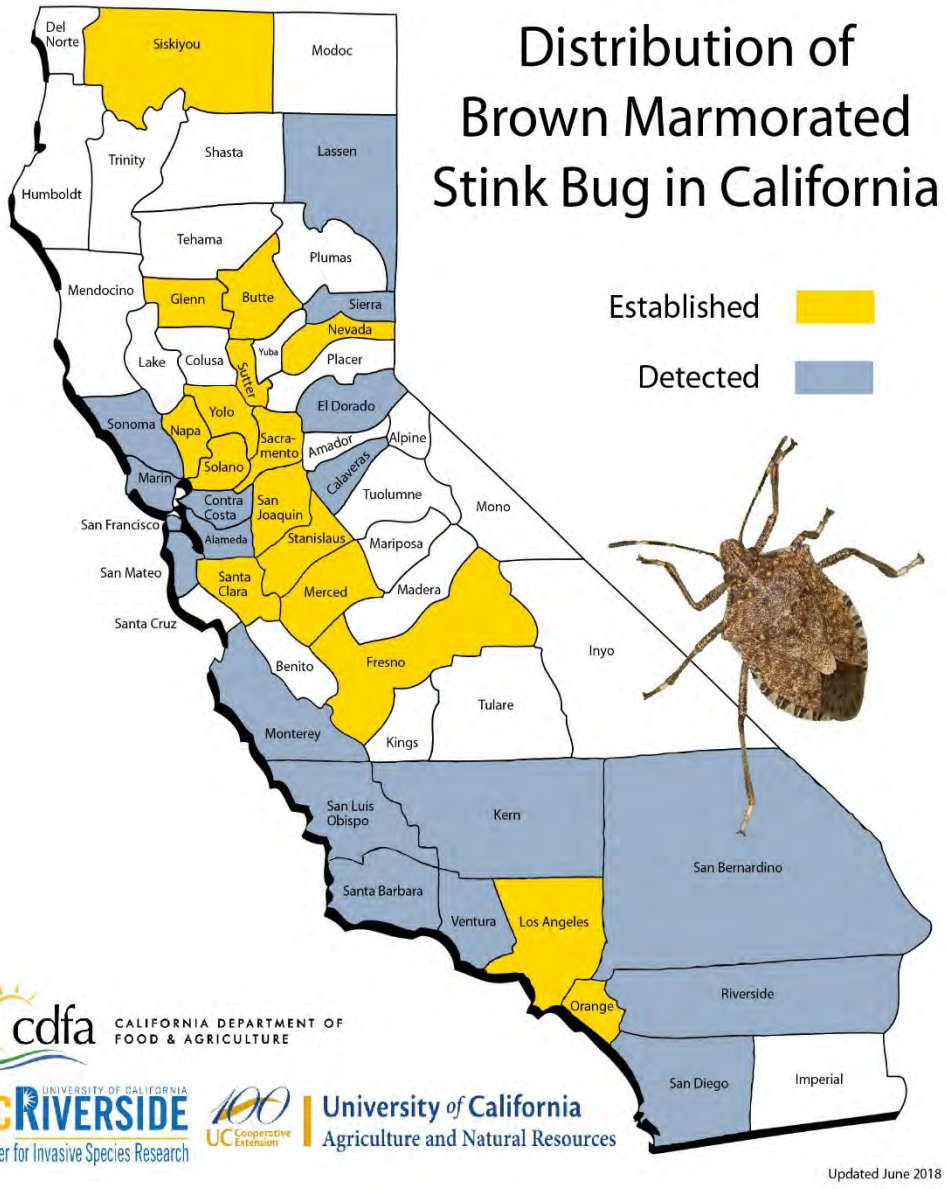


>$50 billion
Top agricultural counties are in the Central Valley, other valuable crops throughout the state

Almonds ($5.8 B)
Grapes ($5.2 B)
Walnuts ($1.8 B)
Pistachios ($1.6 B)
Oranges ($950 M)
Peaches ($356 M)
Kiwifruit ($32 M)

2017 summary (UCR/CDFA)

BMSB in California - 2018



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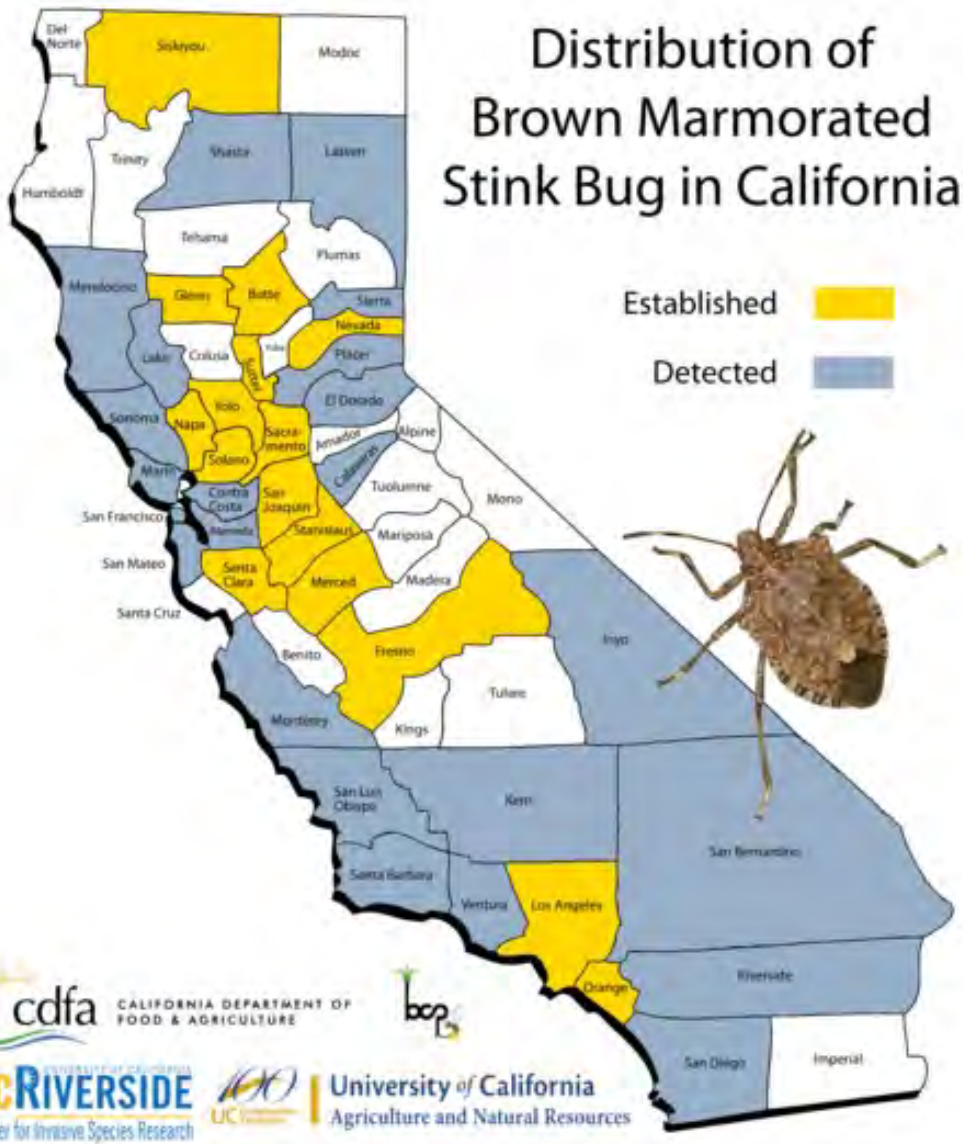

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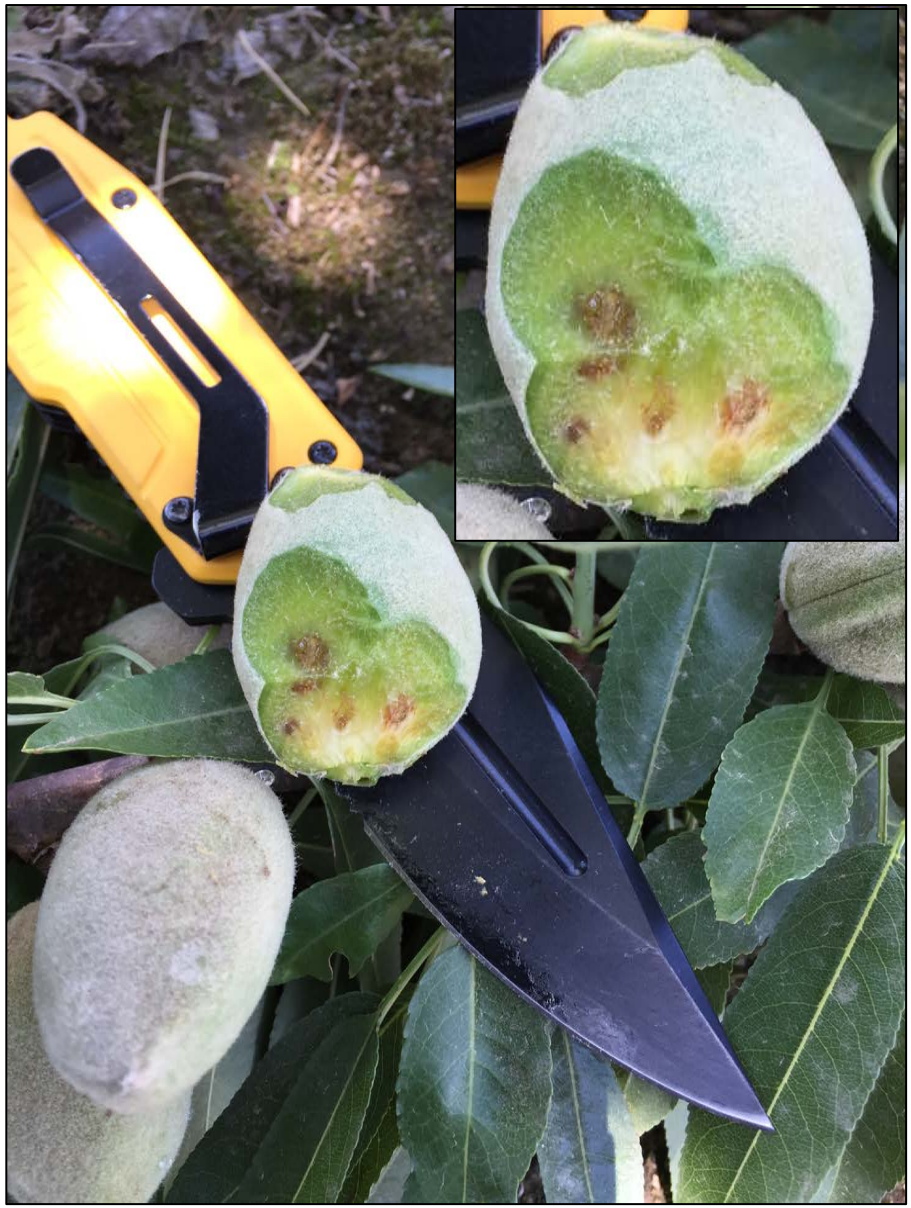
BMSB in California – Almonds



Jhalendra Rijal, Joanna Fisher, Frank Zalom

BSMB damage to almonds

BMSB in California – Pistachios

Judith Stahl, Kent Daane
BSMB damage to pistachio

BMSB Parasitism in California

Trissolcus japonicus detected in 2018

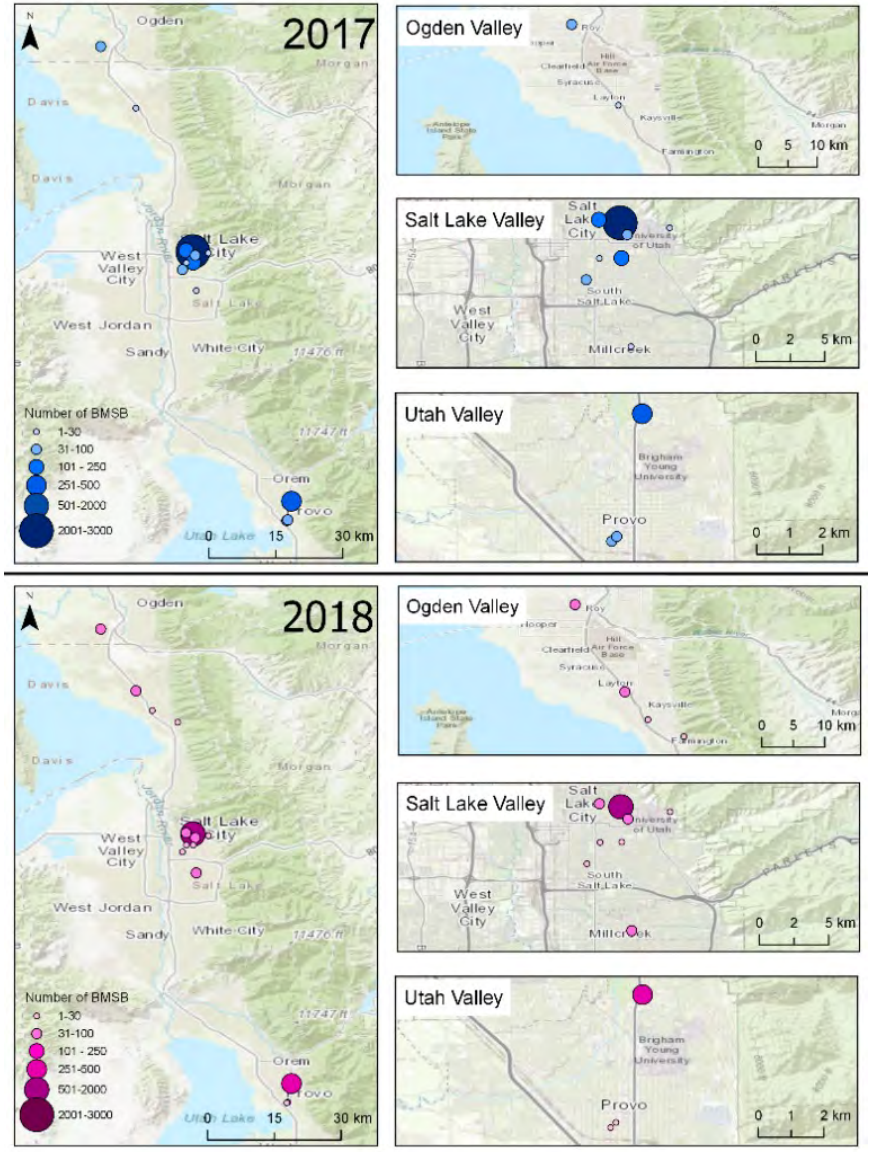
Ricky Lara, Charles Pickett

2020:
Detections of BMSB in pears in N. CA

CA hotspots continue to be Los Angeles & Santa Clara counties, Northern San Joaquin Valley

BMSB in Utah

BMSB Plant Survey Maps



Brown Marmorated Stink Bug Survey Updates

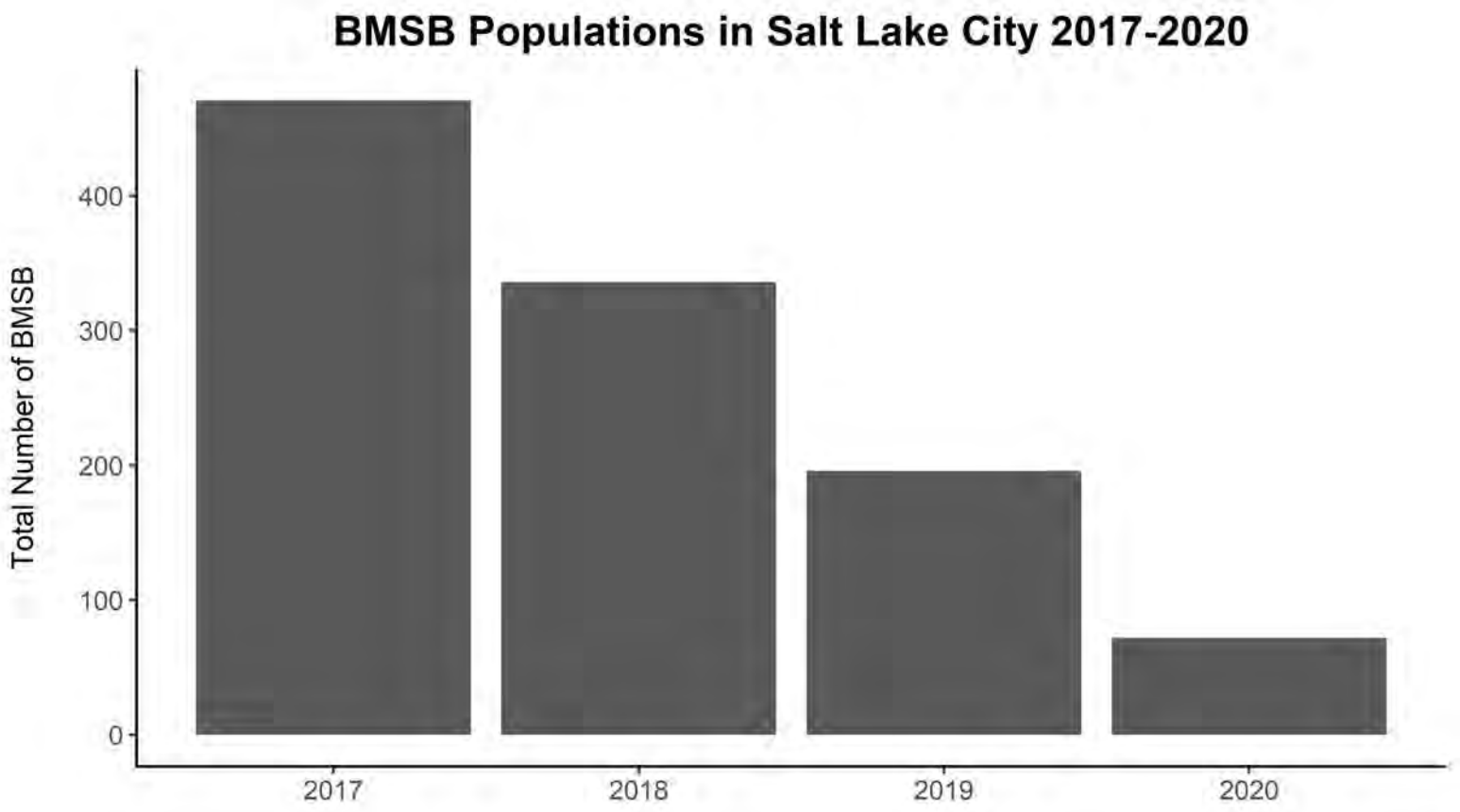
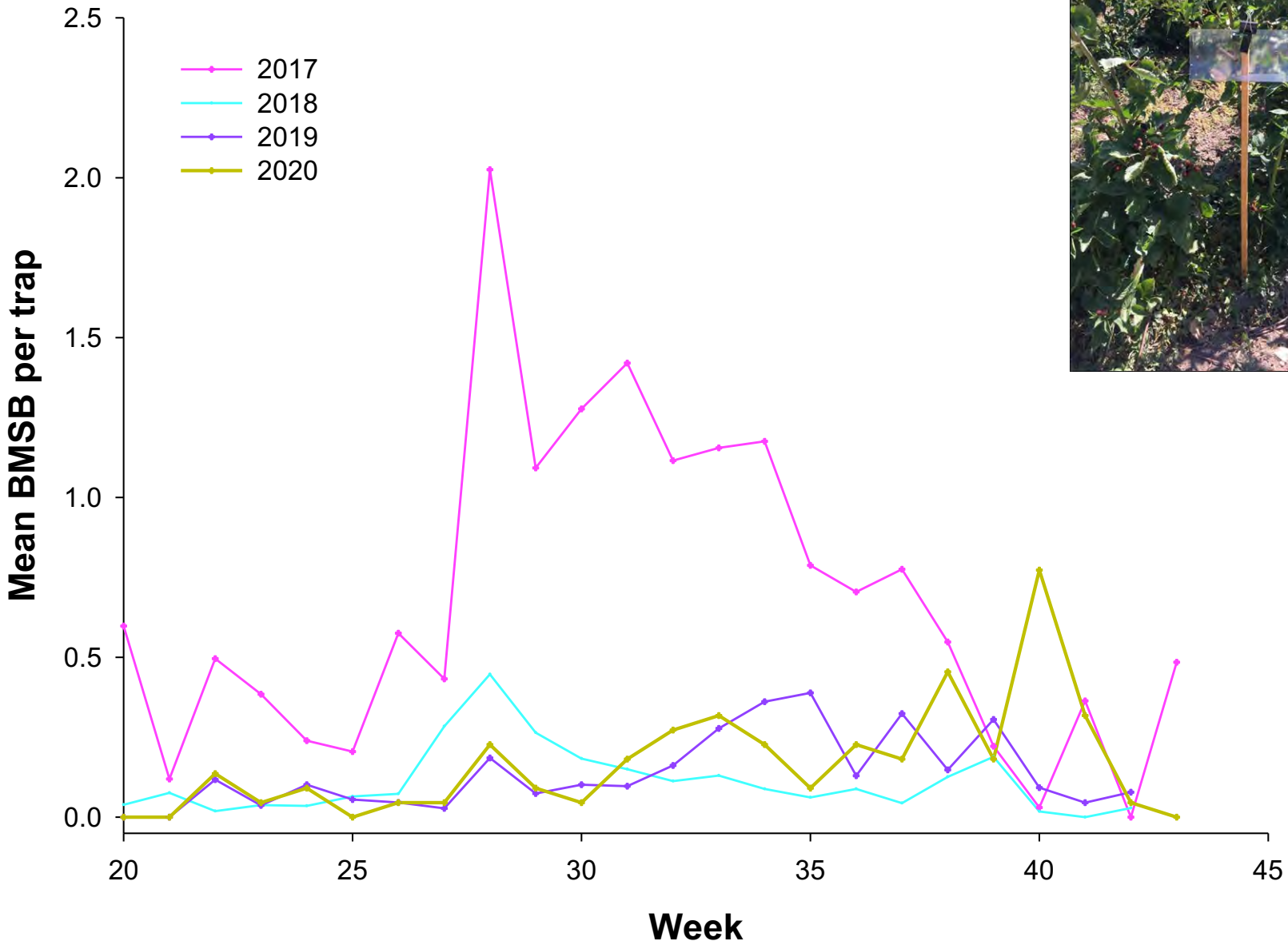
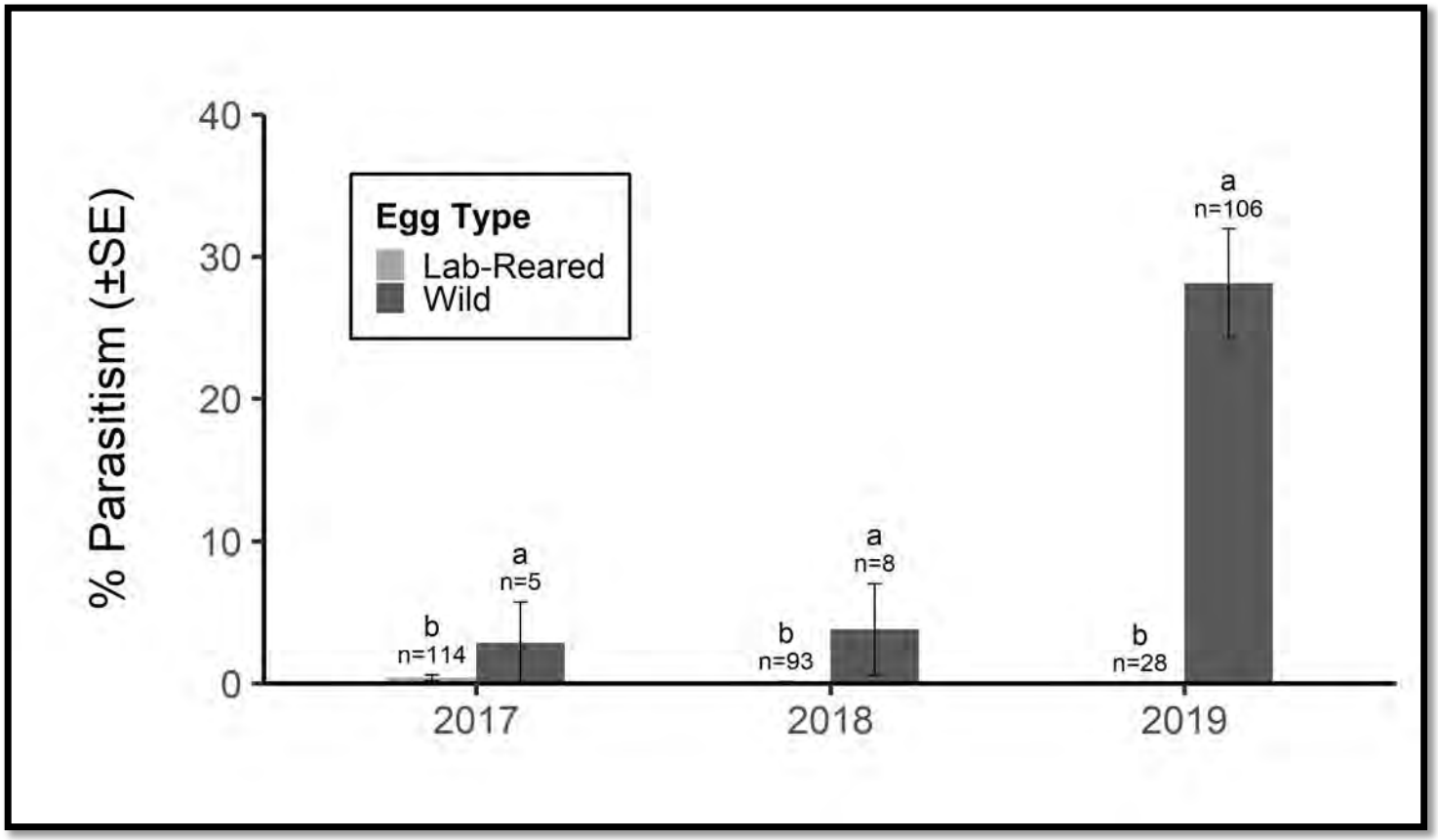


Figure 1. Total BMSB trapped in pyramid traps by year at four urban locations in Salt Lake City, Utah .

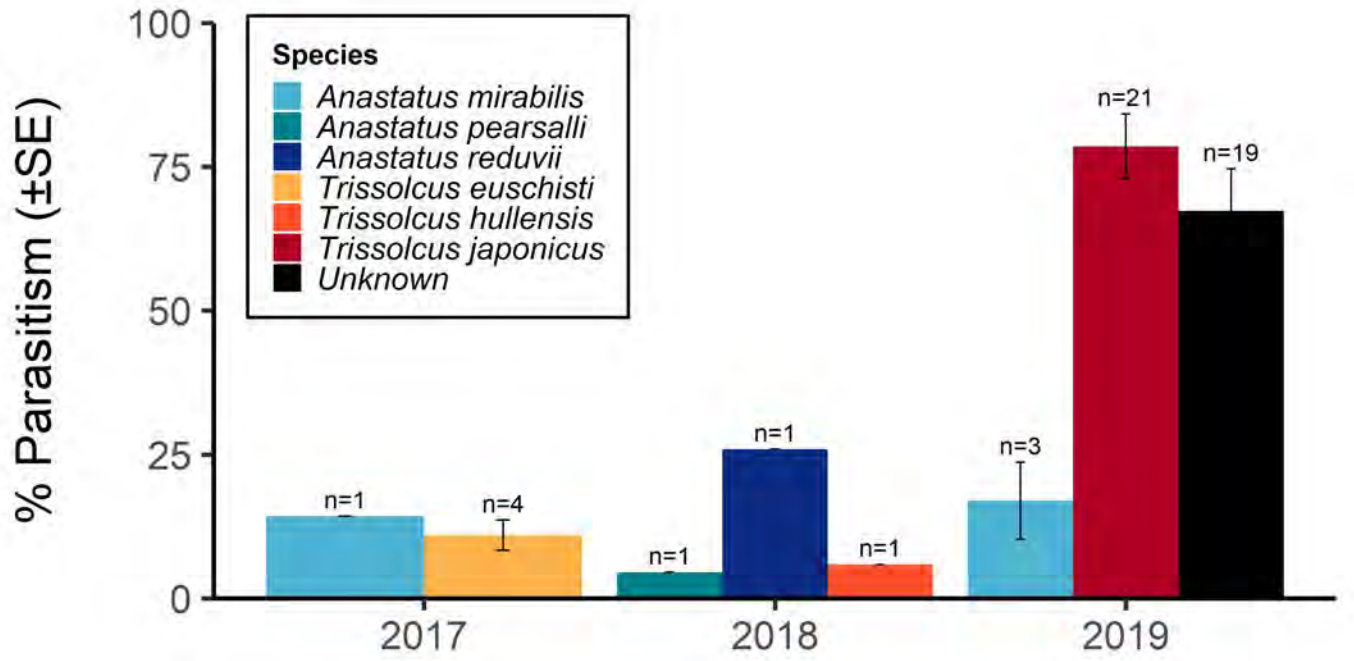
BMSB in Northern Utah (2017-2020)



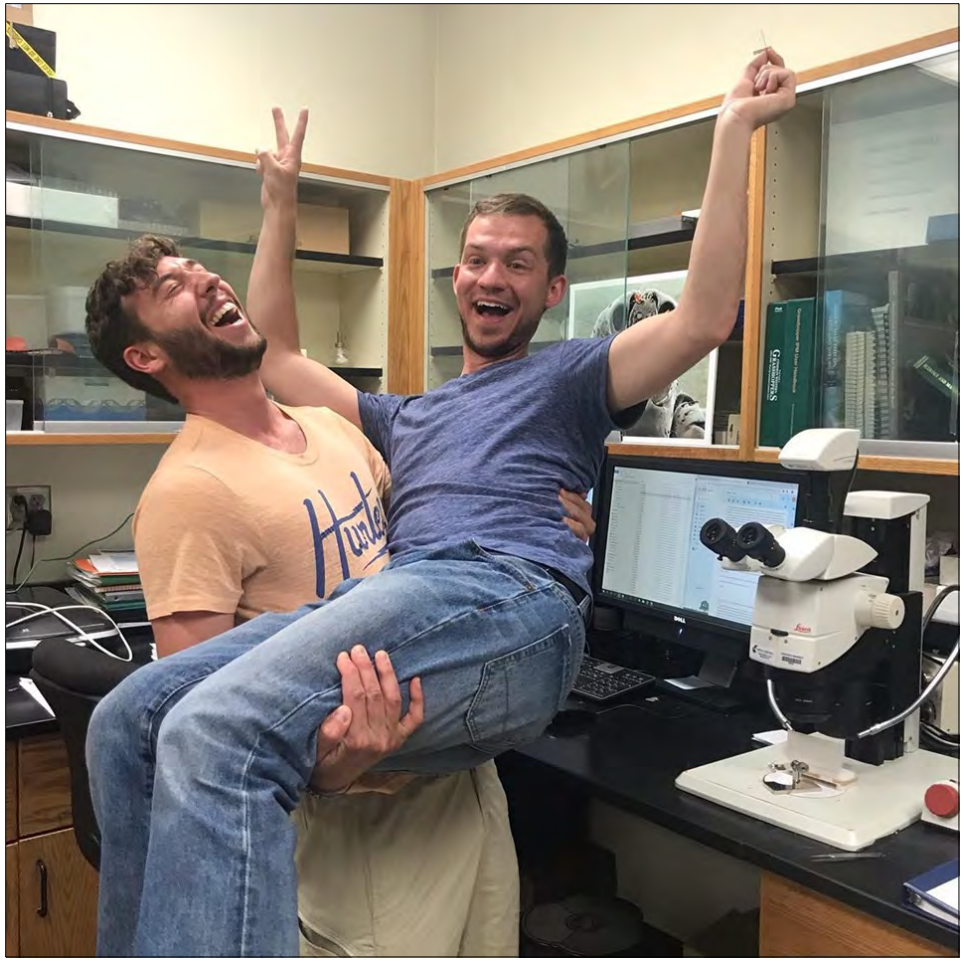
BMSB Mean Egg Mass Parasitism

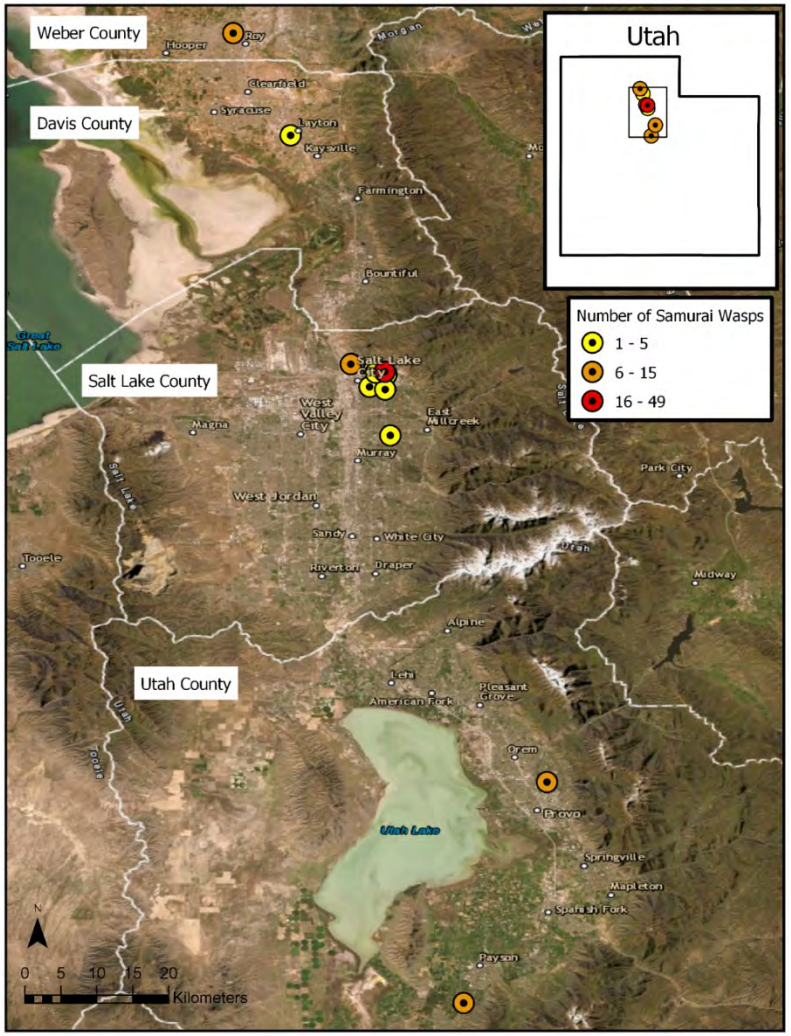


Percent parasitism (± SE) of eggs in wild and lab-reared egg masses with adult wasp emergence in northern Utah, 2017–2019.

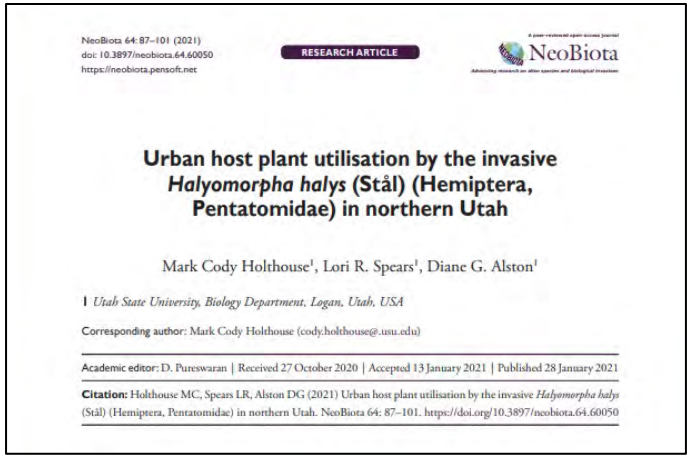


June 2019





Trissolcus japonicus detections in 2019 & 2020



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https://neobiota.pensoft.net

RESEARCH ARTICLE

NeoBiota

Urban host plant utilisation by the invasive *Halyomorpha halys* (Stål) (Hemiptera, Pentatomidae) in northern Utah

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Corresponding author: Mark Cody Holthouse (cody.holthouse@.usu.edu)

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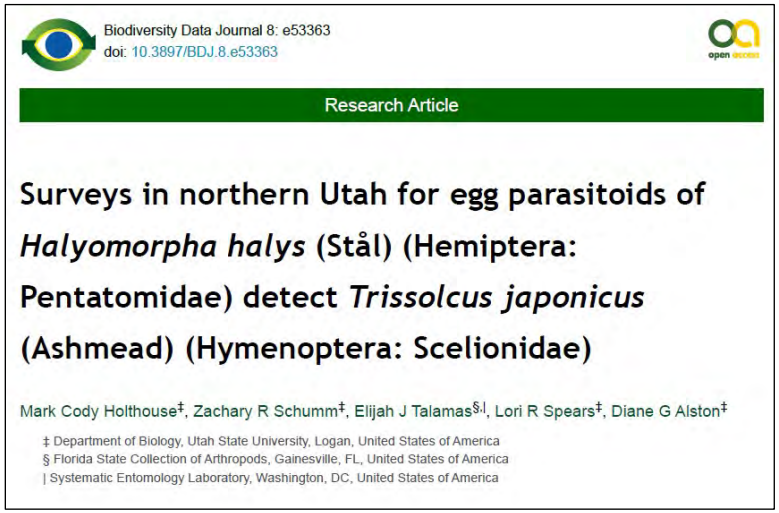


Biodiversity Data Journal 8: e53363
doi: 10.3897/BDJ.8.e53363

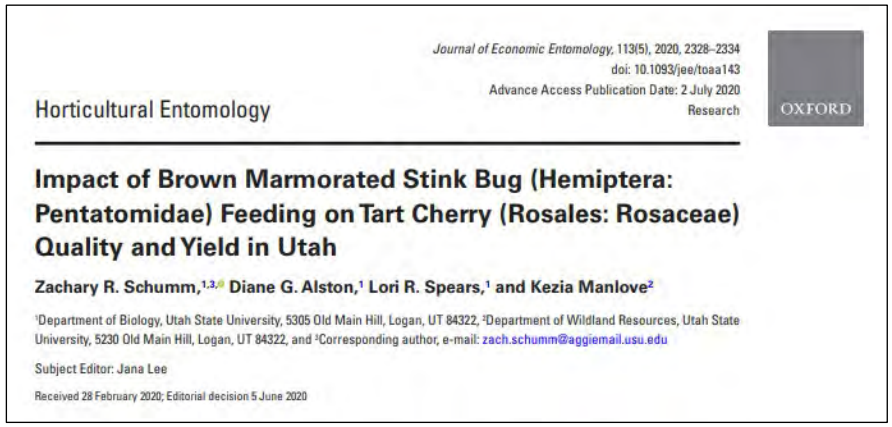
open access

Research Article

Surveys in northern Utah for egg parasitoids of *Halyomorpha halys* (Stål) (Hemiptera: Pentatomidae) detect *Trissolcus japonicus* (Ashmead) (Hymenoptera: Scelionidae)

Mark Cody Holthouse‡, Zachary R Schumm‡, Elijah J Talamas§,|, Lori R Spears‡, Diane G Alston‡

‡ Department of Biology, Utah State University, Logan, United States of America
§ Florida State Collection of Arthropods, Gainesville, FL, United States of America
| Systematic Entomology Laboratory, Washington, DC, United States of America



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doi: 10.1093/jee/toaa143
Advance Access Publication Date: 2 July 2020
Research

OXFORD

Horticultural Entomology

Impact of Brown Marmorated Stink Bug (Hemiptera: Pentatomidae) Feeding on Tart Cherry (Rosales: Rosaceae) Quality and Yield in Utah

Zachary R. Schumm,[1,3,] Diane G. Alston,[1] Lori R. Spears,[1] and Kezia Manlove[2]

[1]Department of Biology, Utah State University, 5305 Old Main Hill, Logan, UT 84322, [2]Department of Wildland Resources, Utah State University, 5230 Old Main Hill, Logan, UT 84322, and [3]Corresponding author, e-mail: zach.schumm@aggiemail.usu.edu

Subject Editor: Jana Lee

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Select Language

29 January 2021

Behavior of the Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål) (Hemiptera: Pentatomidae), in the Utah Agricultural Landscape Based on Trap Captures and Visual Sampling Studies

Zachary R. Schumm, Diane G. Alston, Lori R. Spears

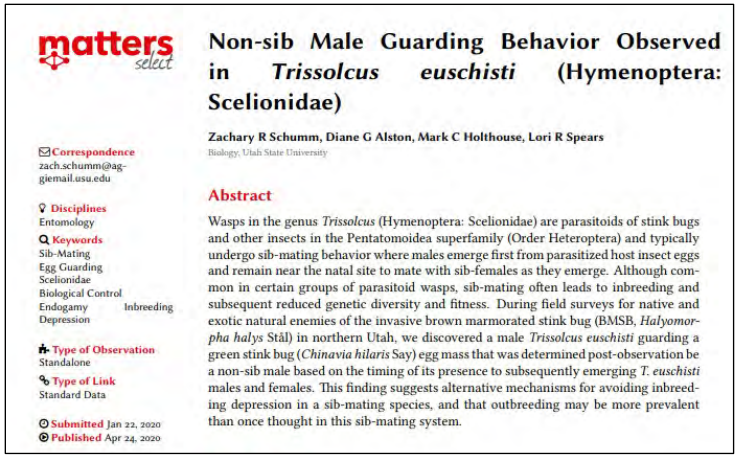
Author Affiliations +

Proceedings of the Entomological Society of Washington, 123(1):206-216 (2021). https://doi.org/10.4289/0013-8797.123.1.206

ARTICLE + | FIGURES & TABLES | REFERENCES | CITED BY

Abstract

The brown marmorated stink bug (BMSB), *Halyomorpha halys* (Stål), is a polyphagous, invasive insect of economic concern to agricultural production in North America. It was first discovered in Utah in 2012; crop damage was first reported in 2017. We propose that northern Utah's high elevation agricultural regions (> 1200 m), arid climate, and small-scale production fields surrounded by suburban development may invoke differences in BMSB attraction to baited traps and, thereby, influence the effectiveness of monitoring protocols compared with other BMSB-invaded regions. To evaluate these potential differences, we sampled the BMSB along transects with pyramid and sticky panel traps and visual plant inspections at nine orchard and community garden site-years (< 2.5 ha). Sites were selected to represent common specialty crops grown in Utah, including peach, apple, pear, tart cherry, and diverse vegetables. Sampling was conducted in four



matters select

Non-sib Male Guarding Behavior Observed in *Trissolcus euschisti* (Hymenoptera: Scelionidae)

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Disciplines
Entomology

Keywords
Sib-Mating
Egg Guarding
Scelionidae
Biological Control
Endogamy
Inbreeding Depression

Type of Observation
Standalone

Type of Link
Standard Data

Submitted Jan 22, 2020
Published Apr 24, 2020

Abstract

Wasps in the genus *Trissolcus* (Hymenoptera: Scelionidae) are parasitoids of stink bugs and other insects in the Pentatomoidea superfamily (Order Heteroptera) and typically undergo sib-mating behavior where males emerge first from parasitized host insect eggs and remain near the natal site to mate with sib-females as they emerge. Although common in certain groups of parasitoid wasps, sib-mating often leads to inbreeding and subsequent reduced genetic diversity and fitness. During field surveys for native and exotic natural enemies of the invasive brown marmorated stink bug (BMSB, *Halyomorpha halys* Stål) in northern Utah, we discovered a male *Trissolcus euschisti* guarding a green stink bug (*Chinavia hilaris* Say) egg mass that was determined post-observation be a non-sib male based on the timing of its presence to subsequently emerging *T. euschisti* males and females. This finding suggests alternative mechanisms for avoiding inbreeding depression in a sib-mating species, and that outbreeding may be more prevalent than once thought in this sib-mating system.

Tart Cherry
Yield was reduced because feeding caused fruit abscission