

Utah State University

DigitalCommons@USU

Fall Student Research Symposium 2022

Fall Student Research Symposium

12-6-2022

Facilitative Parasitization of Brown Marmorated Stink Bug Eggs Between Native and Invasive Trissolcus Wasps

Zachary Ross

Utah State University, Zachary.Ross@usu.edu

Follow this and additional works at: <https://digitalcommons.usu.edu/fsrs2022>



Part of the [Life Sciences Commons](#)

Recommended Citation

Ross, Zachary, "Facilitative Parasitization of Brown Marmorated Stink Bug Eggs Between Native and Invasive Trissolcus Wasps" (2022). *Fall Student Research Symposium 2022*. 63.

<https://digitalcommons.usu.edu/fsrs2022/63>

This Book is brought to you for free and open access by the Fall Student Research Symposium at DigitalCommons@USU. It has been accepted for inclusion in Fall Student Research Symposium 2022 by an authorized administrator of DigitalCommons@USU. For more information, please contact digitalcommons@usu.edu.



Facilitative Parasitization of Brown Marmorated Stink Bug Eggs Between Native and Invasive *Trissolcus* Wasps

Zachary Ross, *Utah State University* | Diane Alston & Kate Richardson, *Utah State University*

I. Introduction

The Brown Marmorated Stink Bug (*Halyomorpha halys*, BMSB) is an extremely successful invasive species in North America with over 300 host species.

While its primary parasitoid, the Samurai wasp (*Trissolcus japonicus*, *T.j*) can effectively parasitize BMSB eggs, many native wasps have extremely poor results.

Do native wasp species, such as *Trissolcus euschisti* (*T. eu*) benefit from a joint parasitism with *T.j*, and if so, how beneficial is the relationship.



T. japonicus



T. euschisti

Zachary Ross
Utah State University
Department of Biology
Zachary.Ross@usu.edu



II. Methods

BMSB eggs were exposed to different species of wasp.

- Single species trials
- Multi-species trials

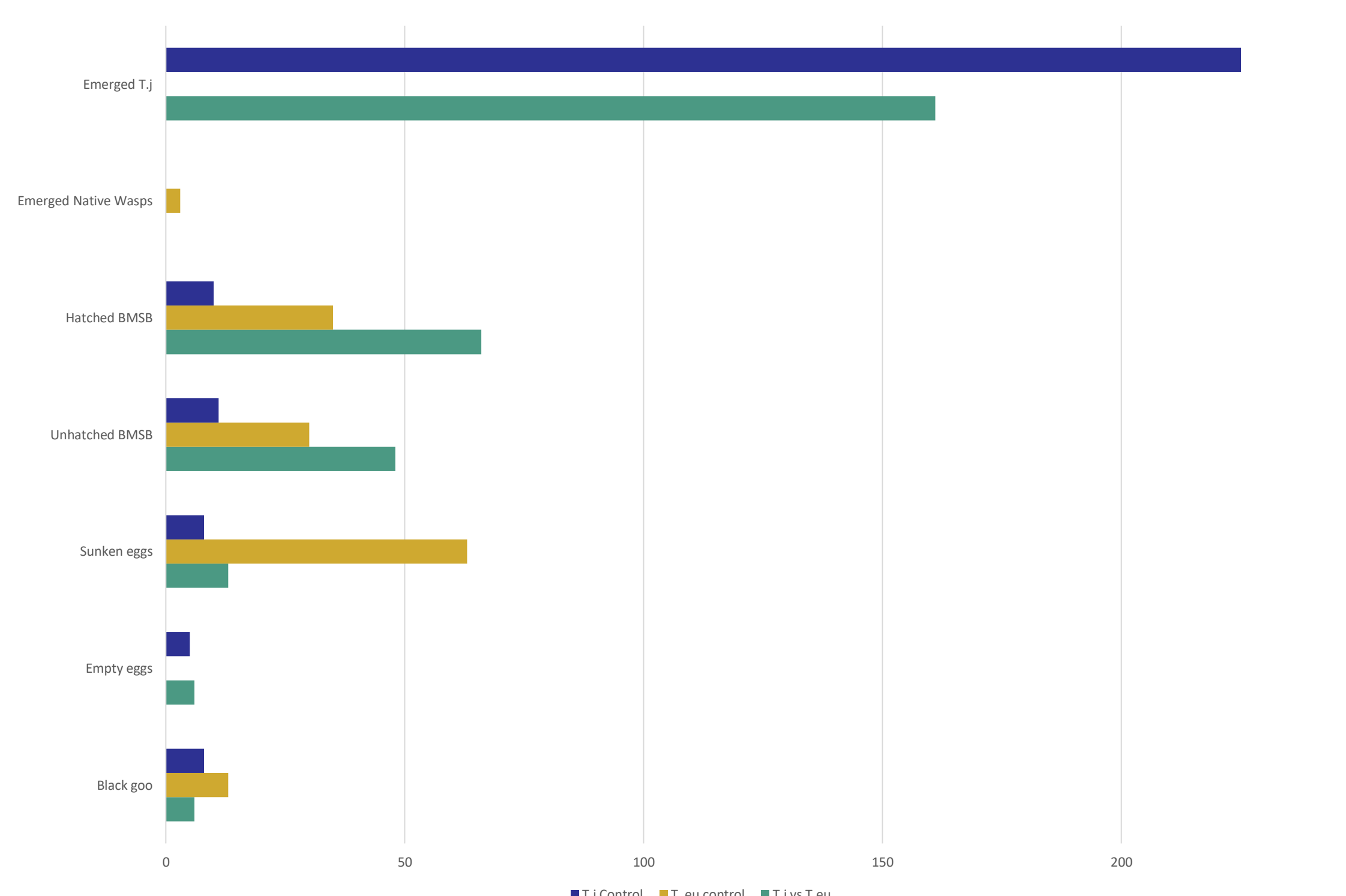
Emerged specimens were then identified along with analysis of unsuccessfully parasitized eggs.

- 7 categories
- 711 eggs analyzed



T. japonicus parasitizing BMSB eggs

Figure 1— Facilitative Parasitization results



III. Results

- Wasp emergences fell, BMSB hatch rates rose
 - *T.j* emergence fell 31%, while BMSB hatch rates rose 18%
- No native wasps emerged when targeting previously parasitized eggs
- *T. eu* only successfully emerged 3 times from BMSB eggs (<2%)
 - Never from facilitated parasitization



T. euschisti parasitizing *P. maculiventris* eggs, their preferred host species



IV. Conclusions

There was no beneficial relationship observed between native and invasive wasp species when parasitizing BMSB egg masses

- BMSB hatch rates increased
- Wasp emergence fell
- “Other” egg percentages rose hurting both wasp species while simultaneously having a positive effect on BMSB hatch rates

Study conducted with funding from a USU Undergraduate Research and Creative Opportunity Grant and lab assistance from the USU Department of Biology.