

Voltinism and Parasitoids of Brown Marmorated Stink Bug in Utah

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Brown Marmorated Stink Bug (BMSB)

- Invasive from Asia
- Severe agricultural pest and urban nuisance
- Advantageous Traits
 - Polyphagous
 - Long distance dispersal
 - Overwinters in/on human structures



Urban Landscape

- First detection 2012
- Wasatch Front
- Agricultural Proximity



Agricultural Impact

- First damage reported 2017



Objectives

1. Determine the number of generations that occur each year (Voltinism)
2. Document native and exotic parasitoid wasp species in N. Utah



Voltinism: Methods

- 2018-2019
- 60 wild adults
- Mesh bags
- Weekly observations (May-Oct.)



Plant Hosts

Catalpa



Tart Cherry



Peach



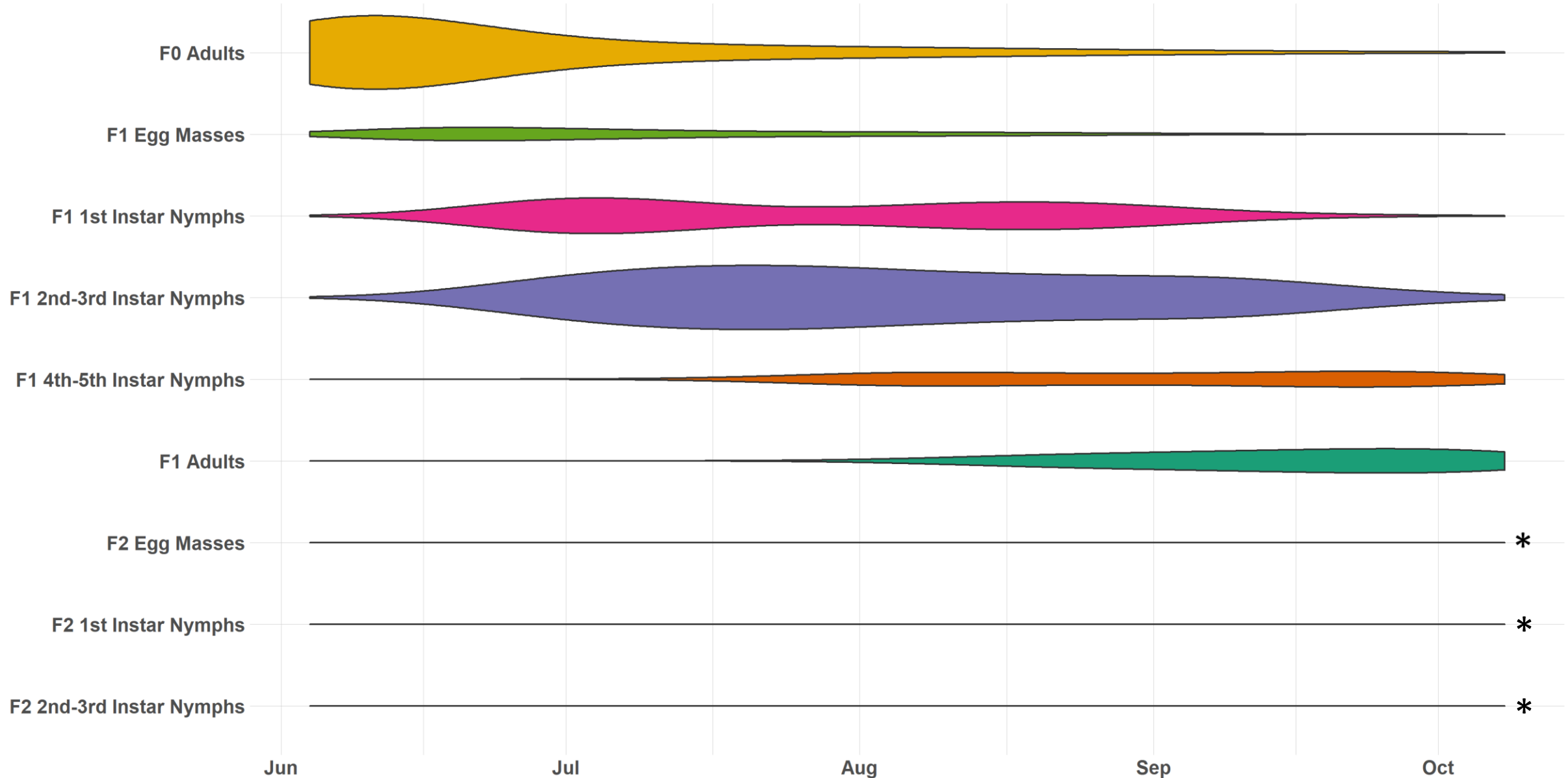
Catalpa and Peach



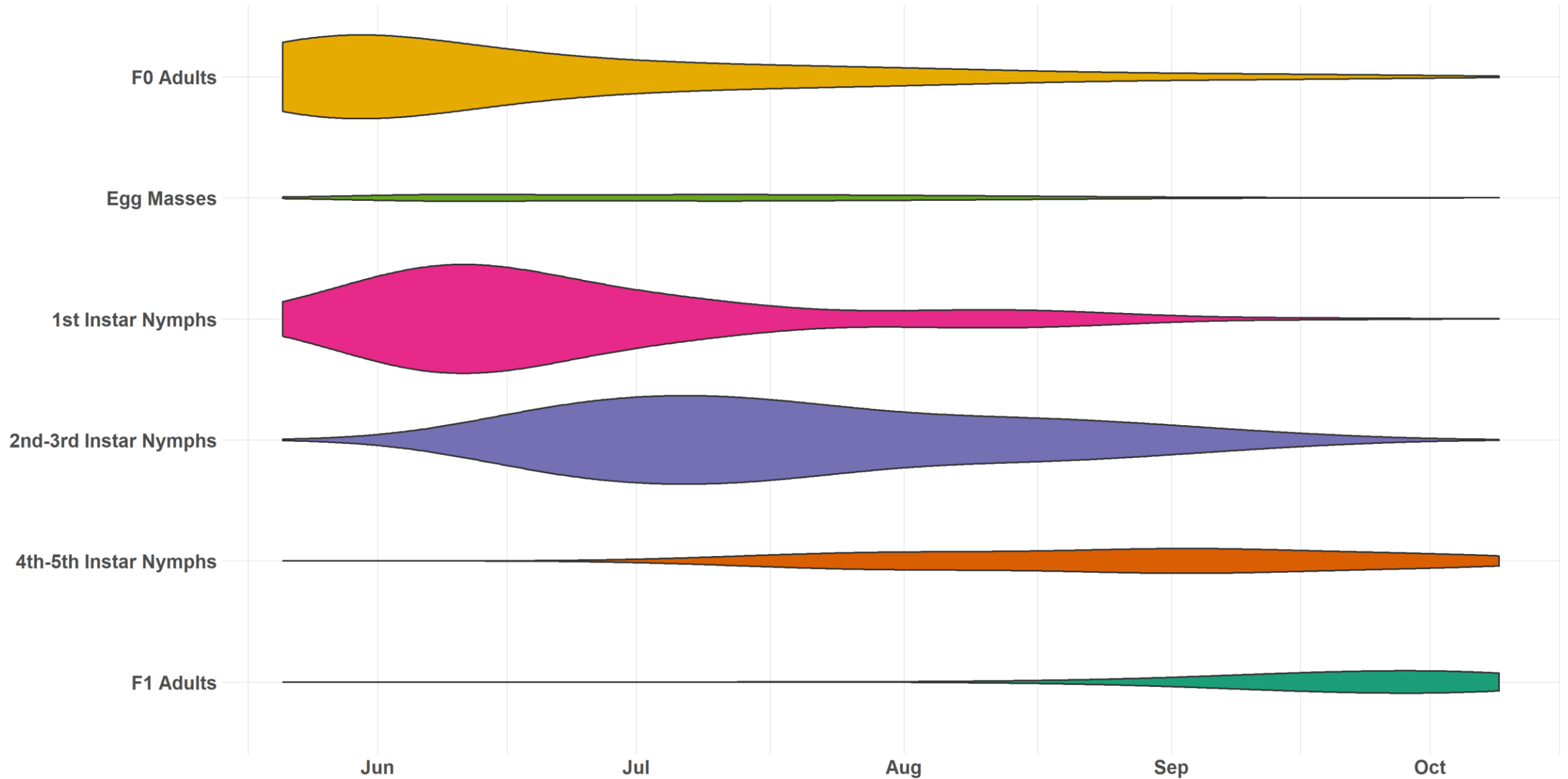
Tart Cherry and Peach



Mean Number of BMSB by Lifestage 2018

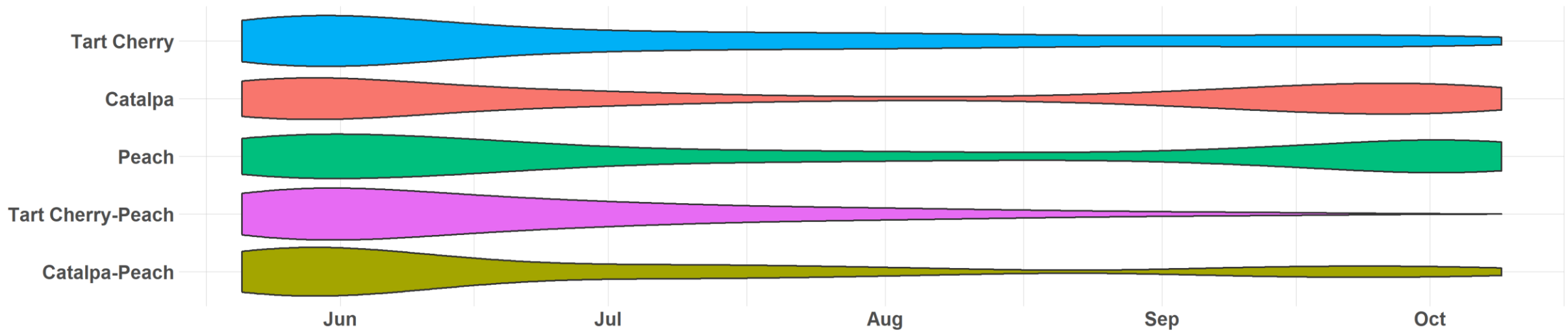


Mean Number of BMSB by Lifestage 2019

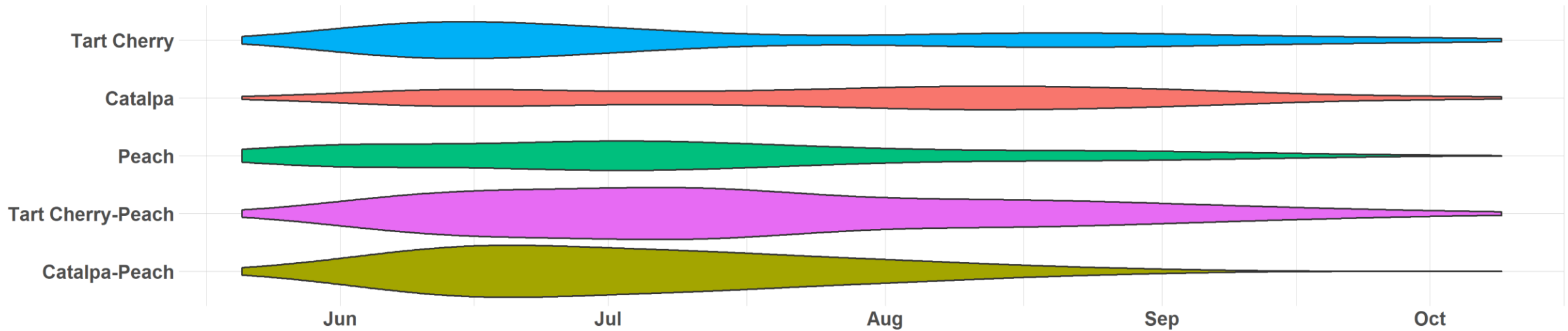


Mean Number of BMSB Per Host Plant 2019

Adults



Nymphs



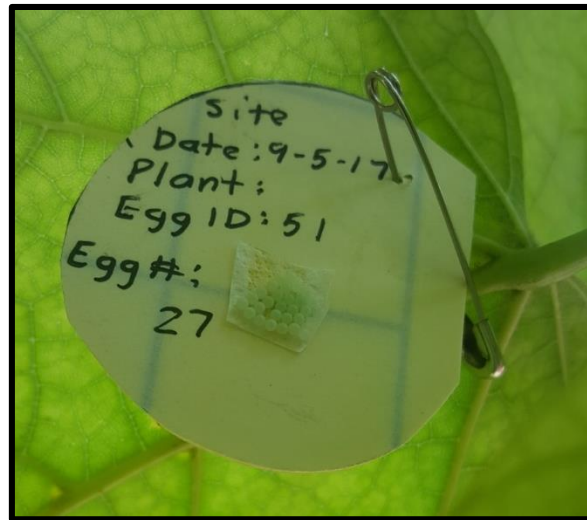
Voltinism: Conclusions

- BMSB is primarily univoltine
- Larger nymph populations are enabled by access to multiple hosts



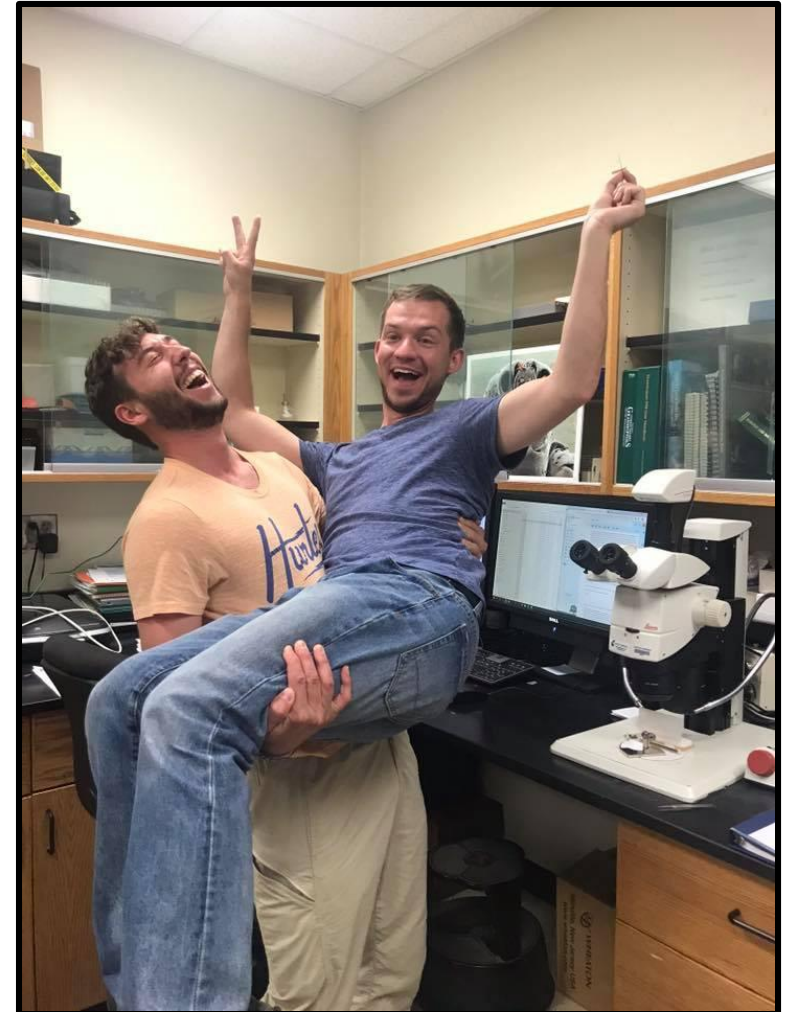
Parasitoid Wasp Surveys: Methods

- 2017-2019
- Sentinel egg masses ($n=235$)
- Wild egg masses ($n=119$)
- Catalpa
- Emerged native wasps
 - *Anastatus mirabilis*
 - *A. pearsali*
 - *A. reduvii*
 - *Trissolcus eushisti*
 - *T. hullensis*

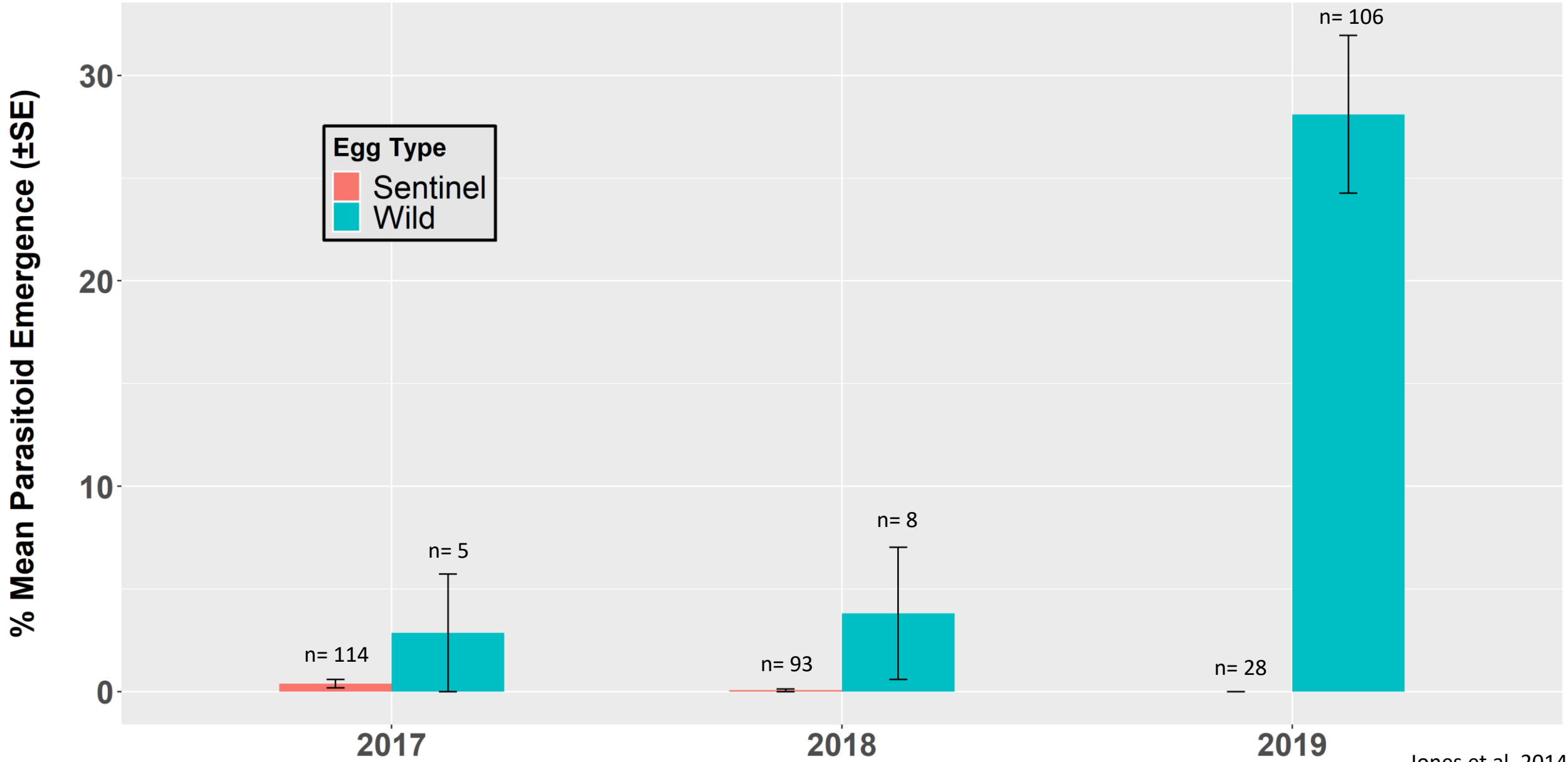


Samurai Wasp, *Trissolcus japonicus* in Utah

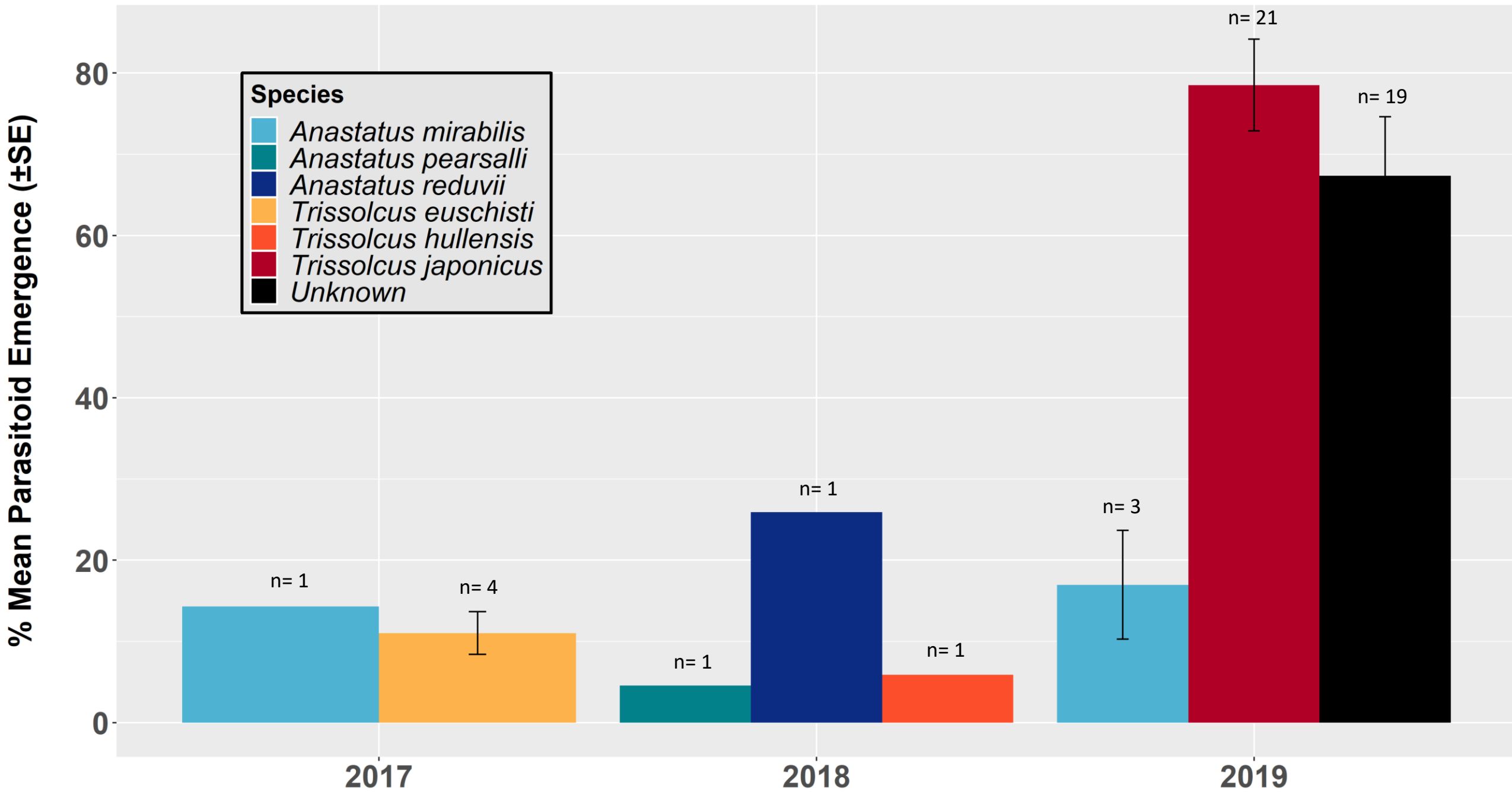
- June 2019 in Salt Lake City
- Discovered on wild egg mass on catalpa
- Effective Asian parasitoid



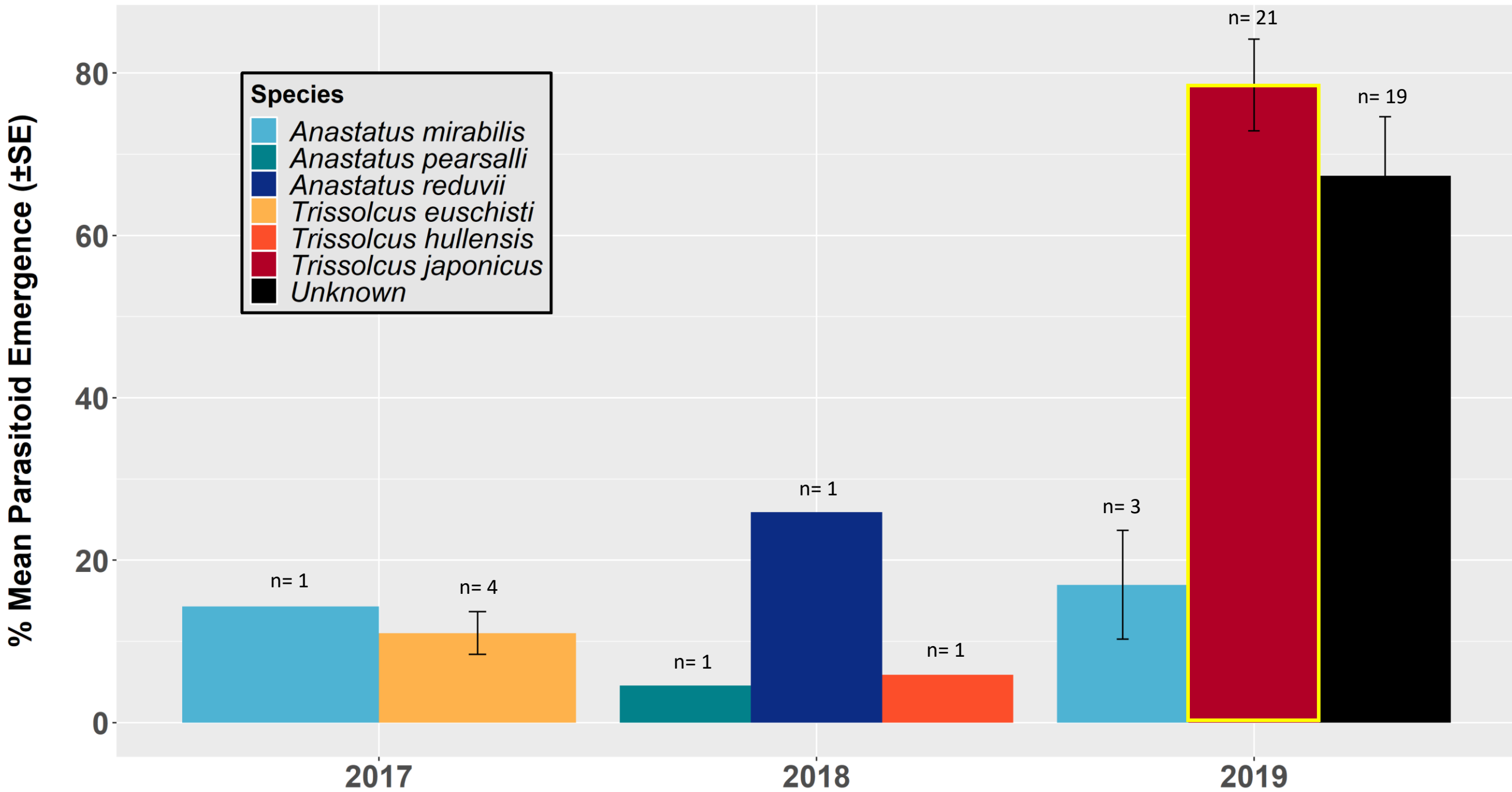
Yearly Parasitoid Wasp Emergence Sentinel vs. Wild Egg Masses



Parasitoid Emergence by Species



Parasitoid Emergence by Species



Parasitoid Wasp Surveys: Conclusions

- Native wasps are present but rarely emerge from BMSB eggs
- The samurai wasp is present in Utah and offers population suppression
- Wild egg masses offer improved assessment of parasitoid activity



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