

2020 BMSB SCRI SAP Meeting
Davis, CA



Dispersal and parasitism rates of the samurai wasp, a biological control agent of the brown marmorated stink bug

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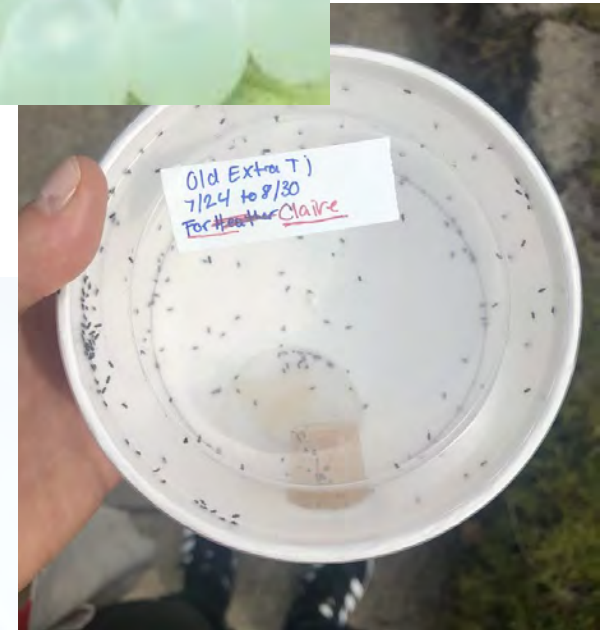
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Brown Marmorated Stink Bug, *Halyomorpha halys*



Samurai Wasp, *Trissolcus japonicus*

- BMSB biocontrol agent
- Adventive egg parasitoid
- Native to same home region as BMSB
 - 70% parasitism
- Studied in quarantine in US
- Discovered in OR in 2016



Objectives

- 1) Monitor invasion and spread of *T. japonicus*
- 2) Assess impacts of actively redistributing *T. japonicus*
- 3) Target specialty crop areas



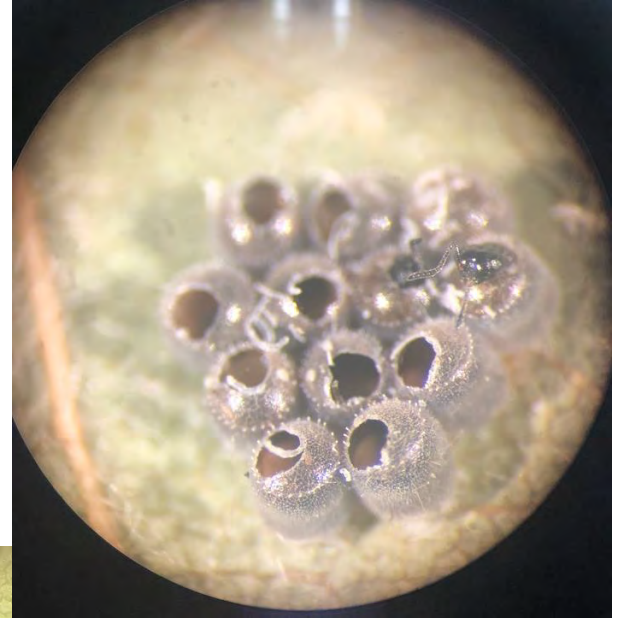
Sentinel Egg Masses



Wild Egg Masses

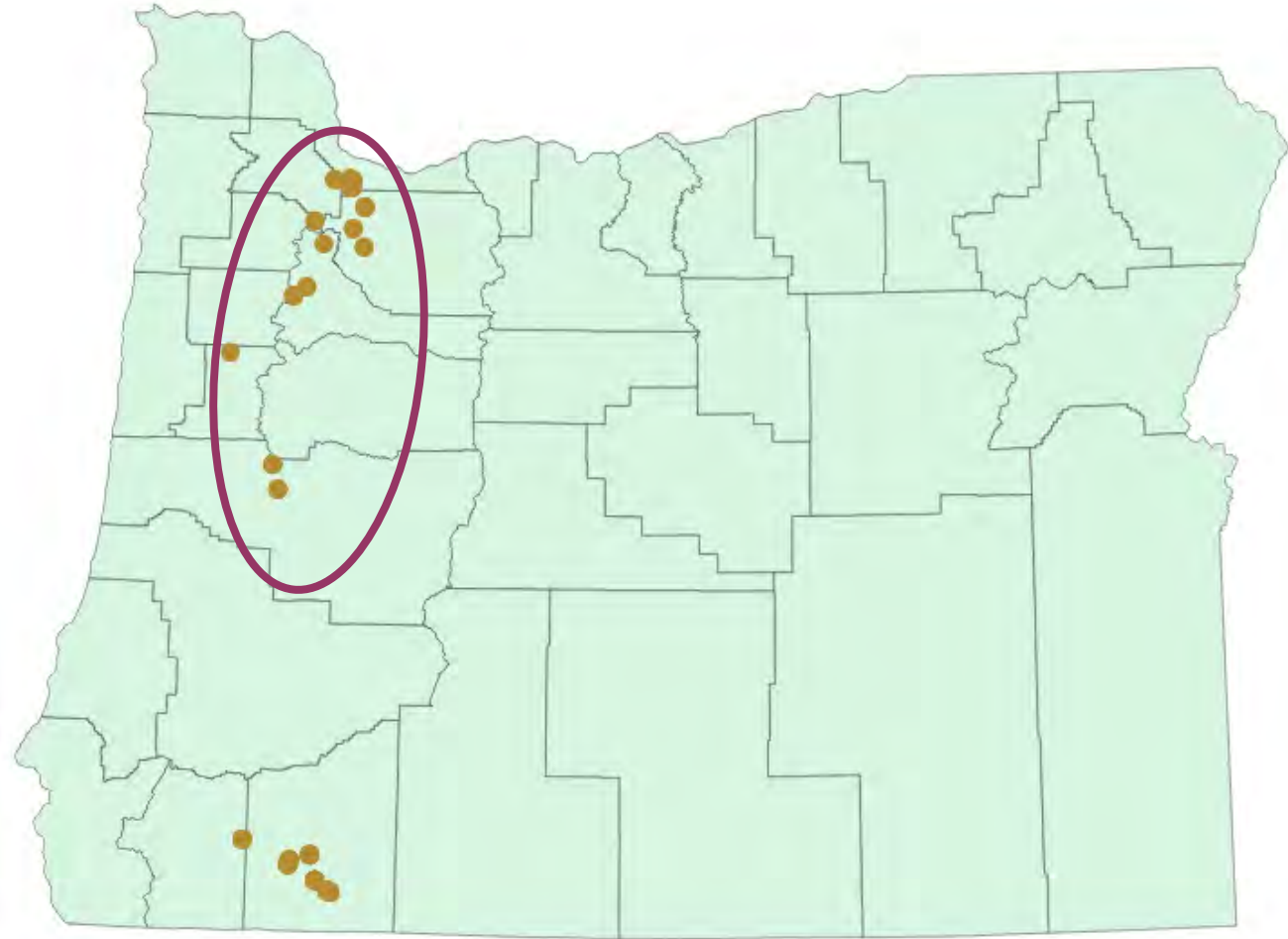


Data Collection



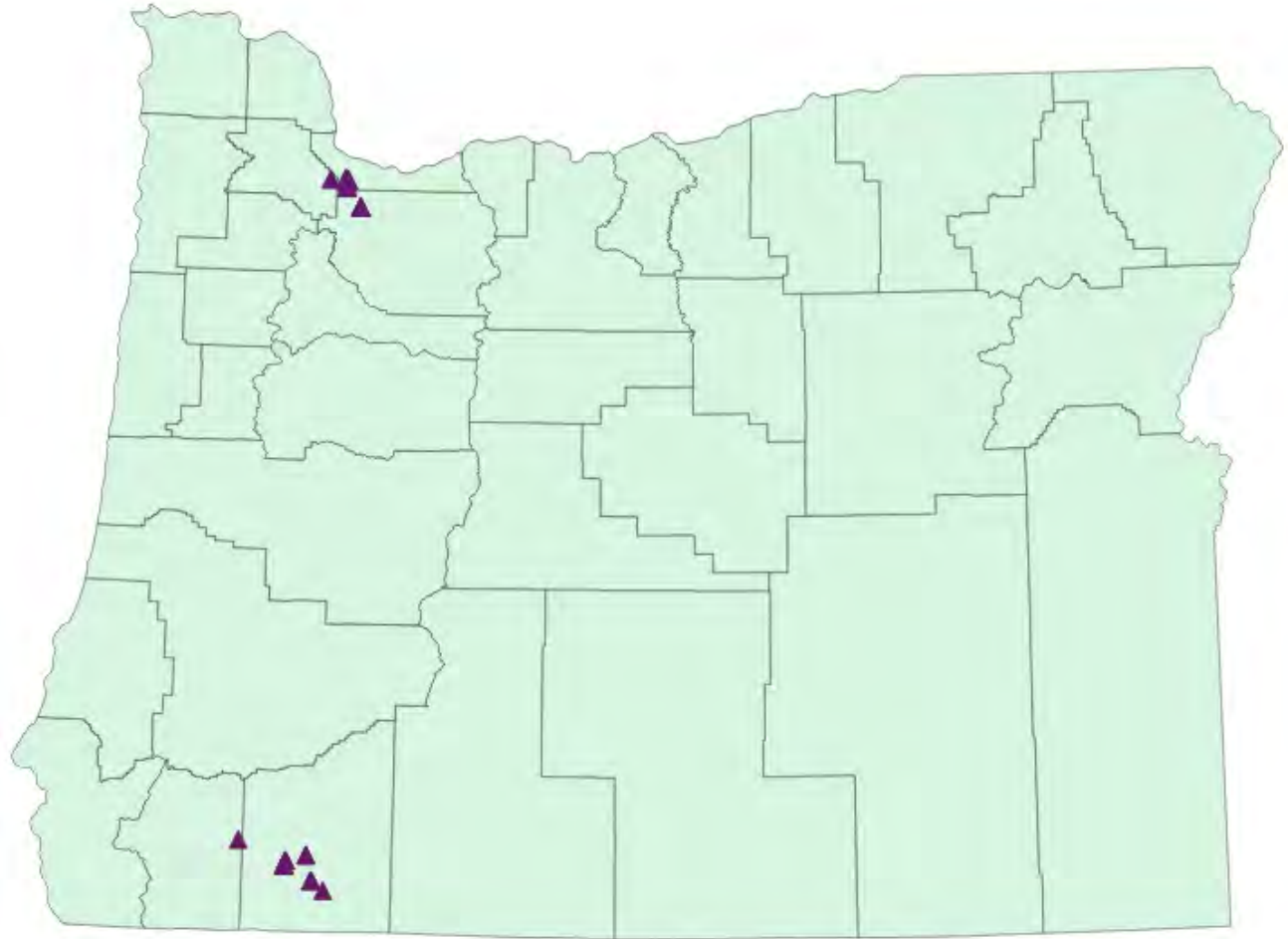
2018 Egg Mass Sites

- n=165
 - 6 wild
 - 103 fresh
 - 56 frozen



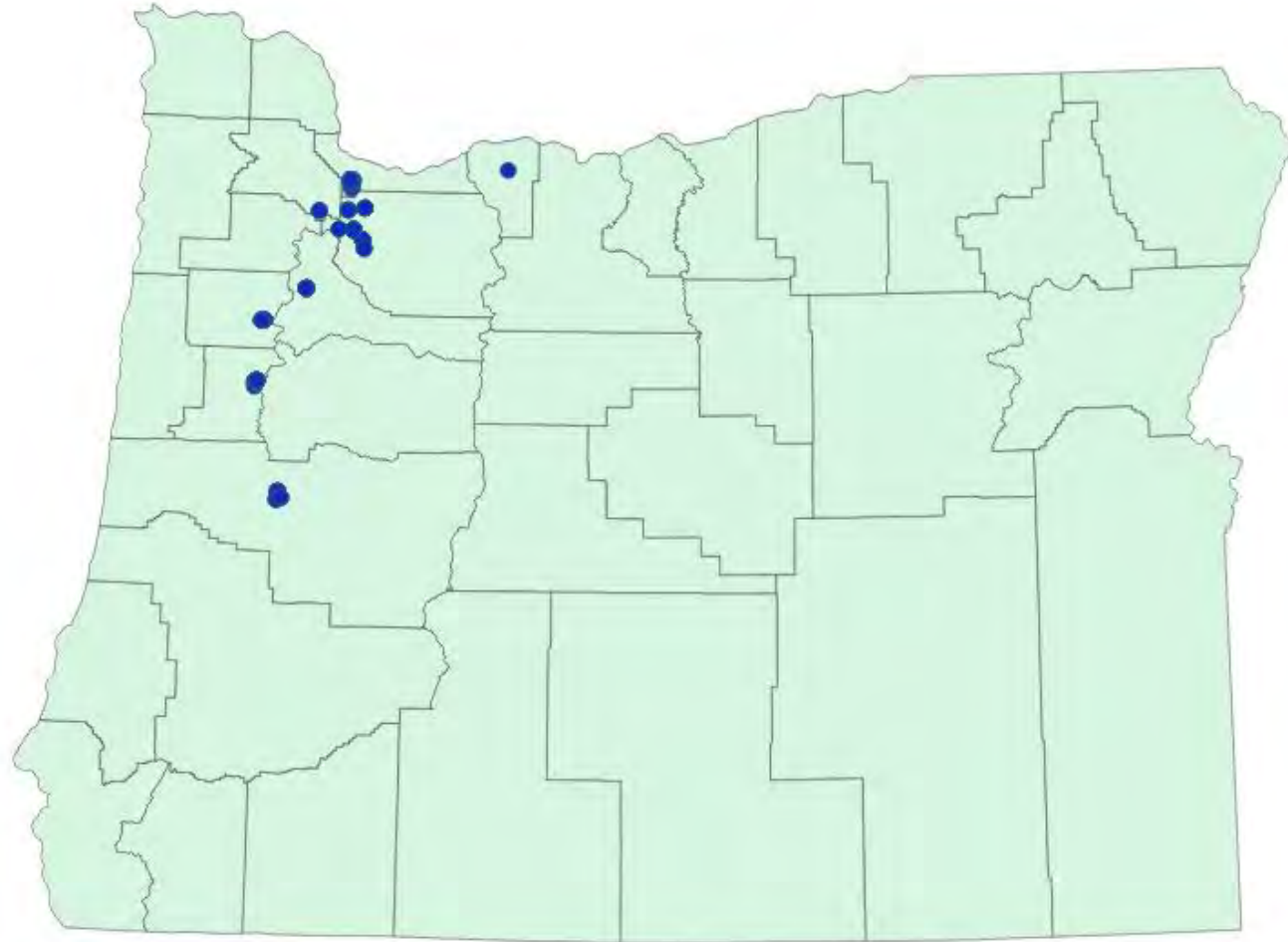
2018 Parasitized Egg Masses

- n=37 (22.4%)
 - 6 wild
 - 22 fresh
 - 9 frozen



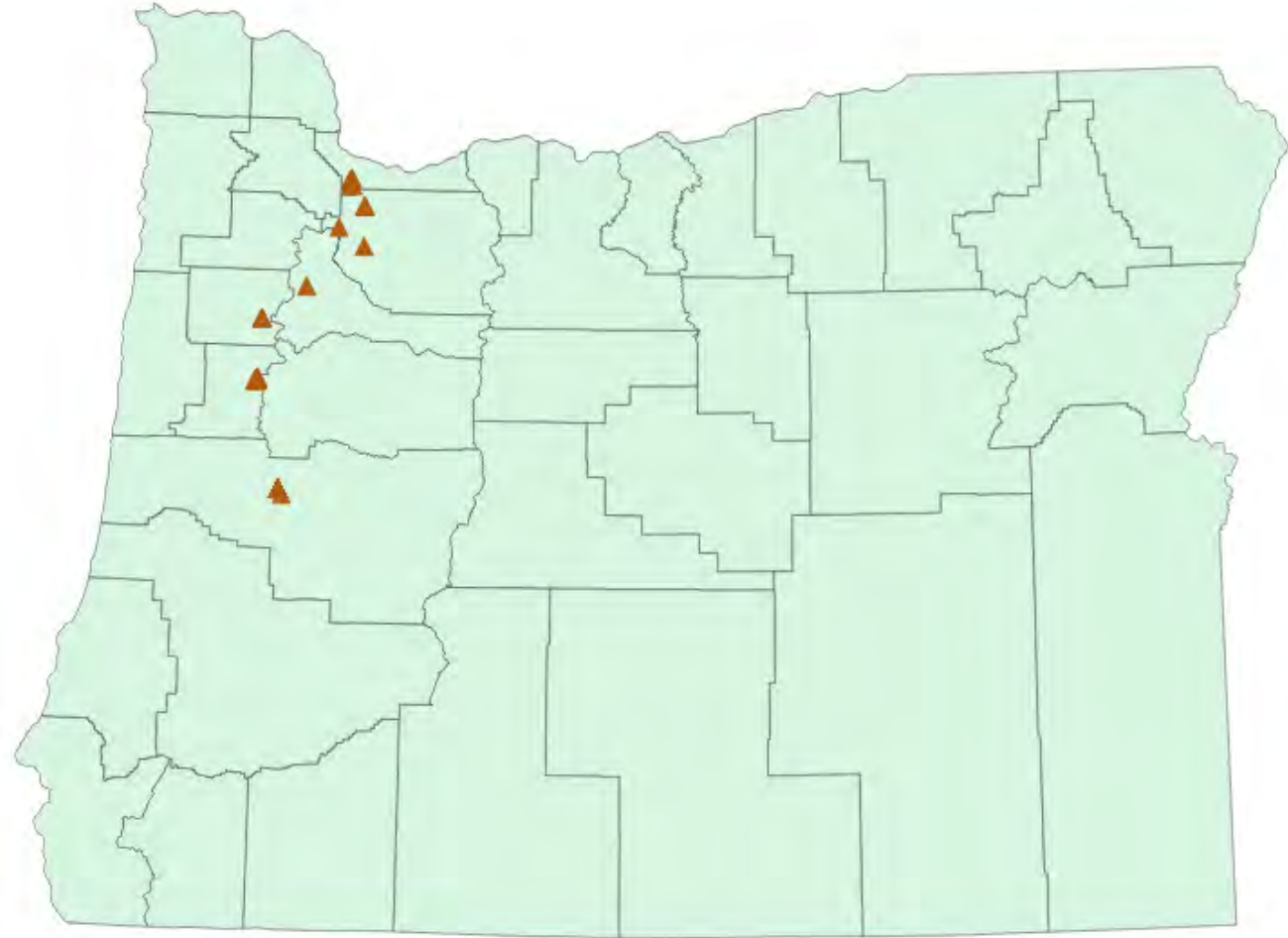
2019 Egg Mass Sites

- n=254
 - 121 wild
 - 81 fresh
 - 52 frozen



2019 Parasitized Egg Masses

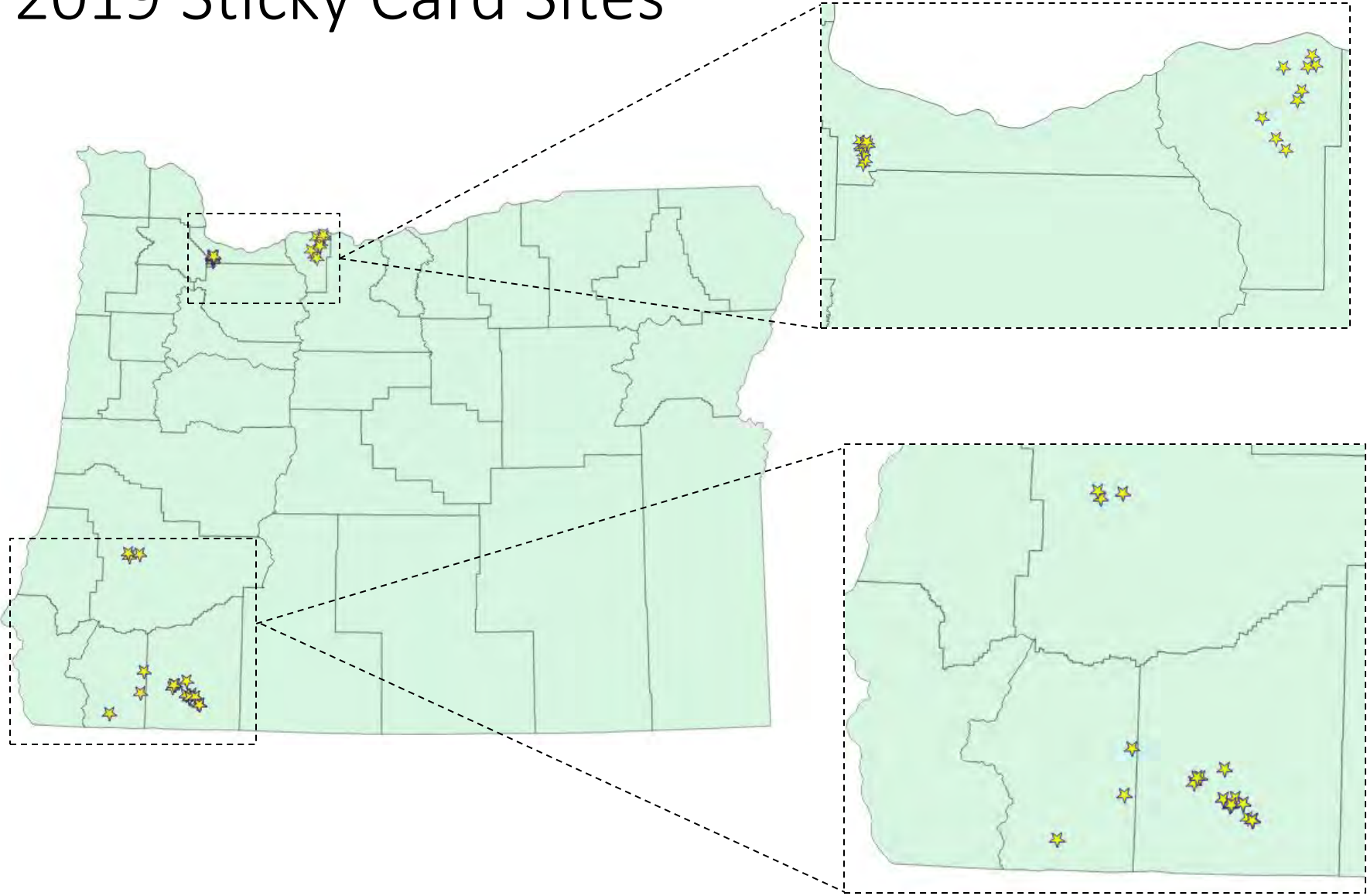
- n=68 (26.8%)
 - 47 wild
 - 14 fresh
 - 7 frozen



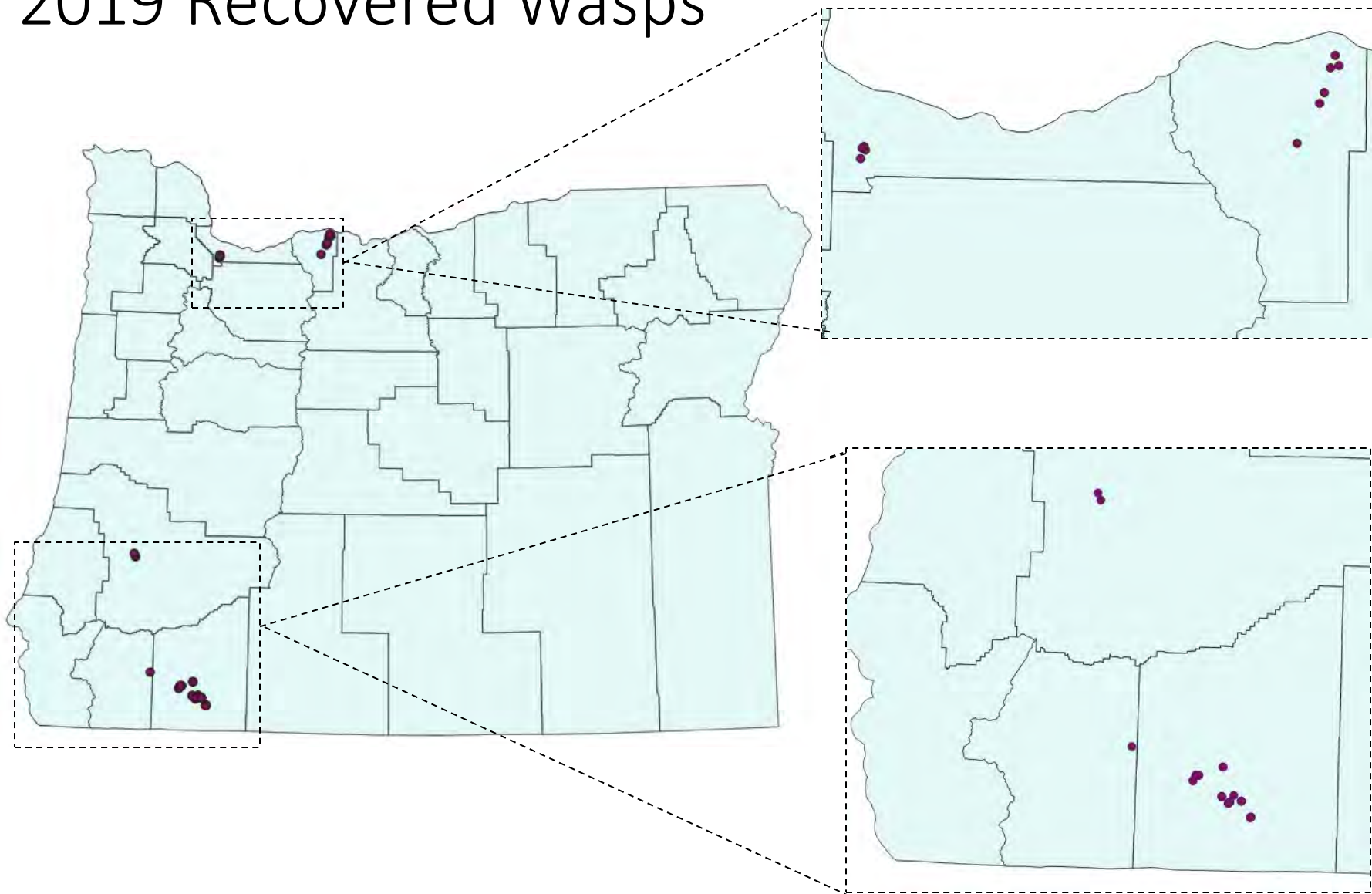
2019 Sticky Cards



2019 Sticky Card Sites

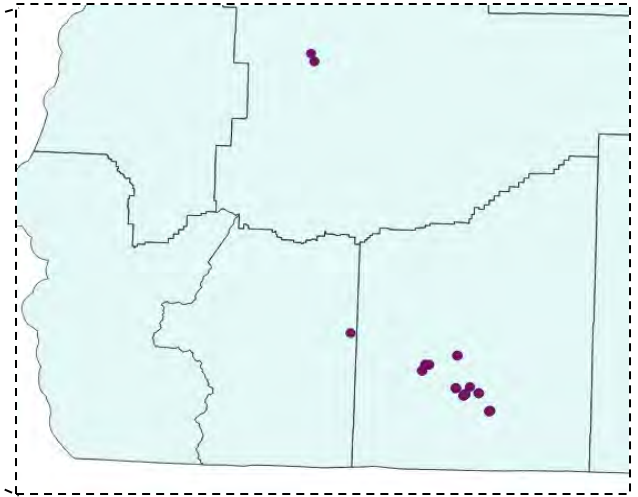
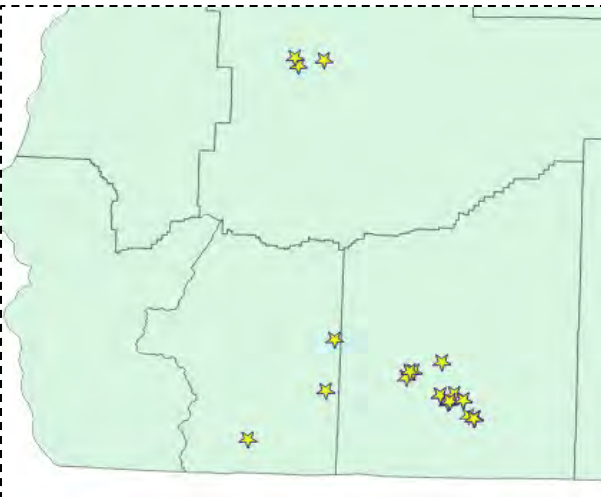
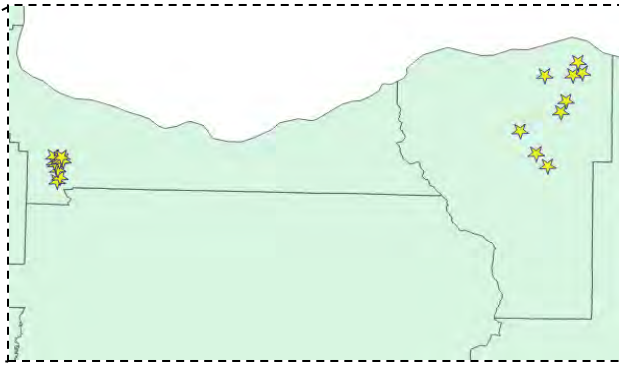


2019 Recovered Wasps

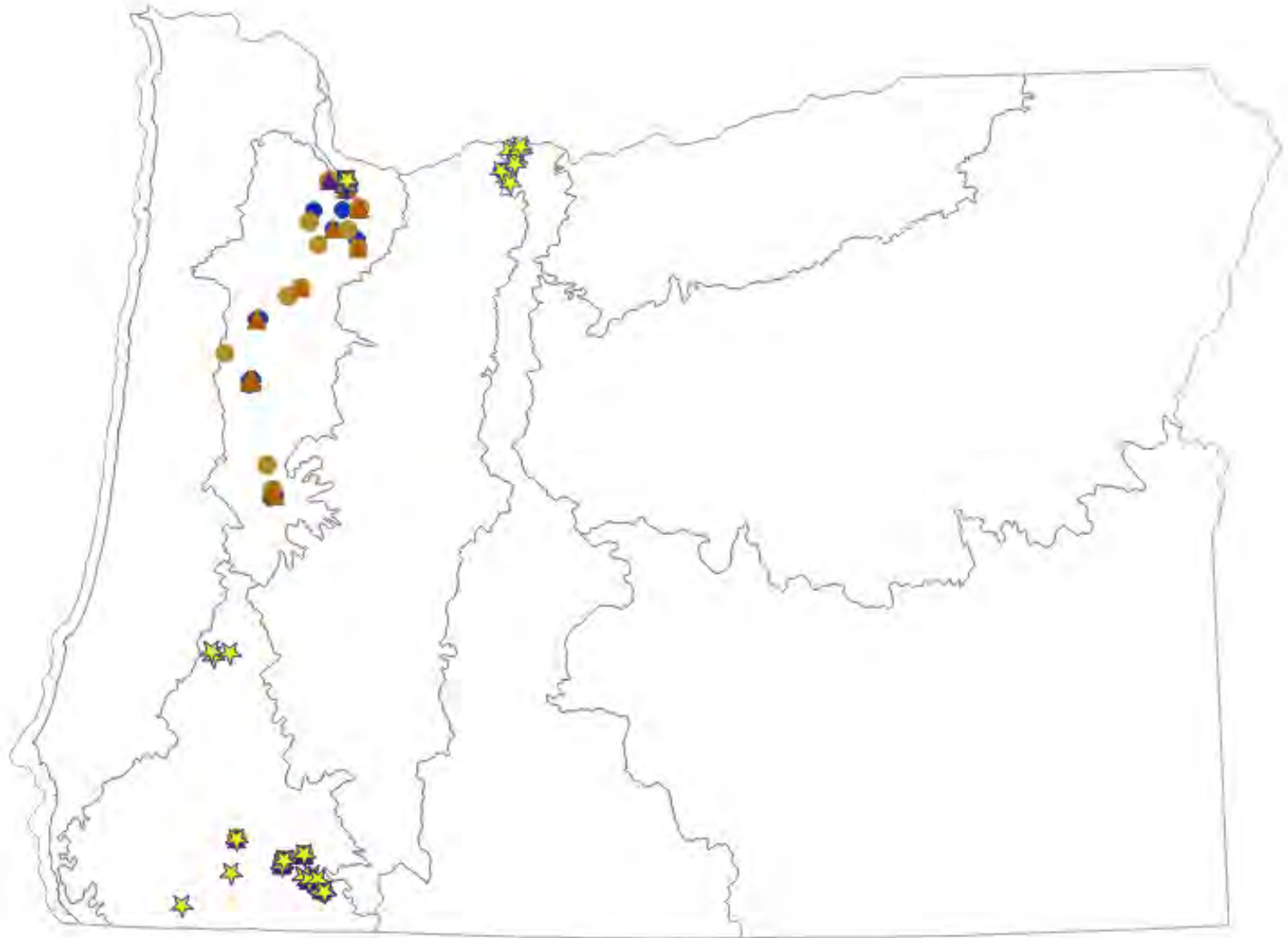


2019 Sticky Card Sites & Recovered Wasps

- Wasps recovered at 39 of 63 sites



Oregon Ecoregions



Lowenstein et al. 2019

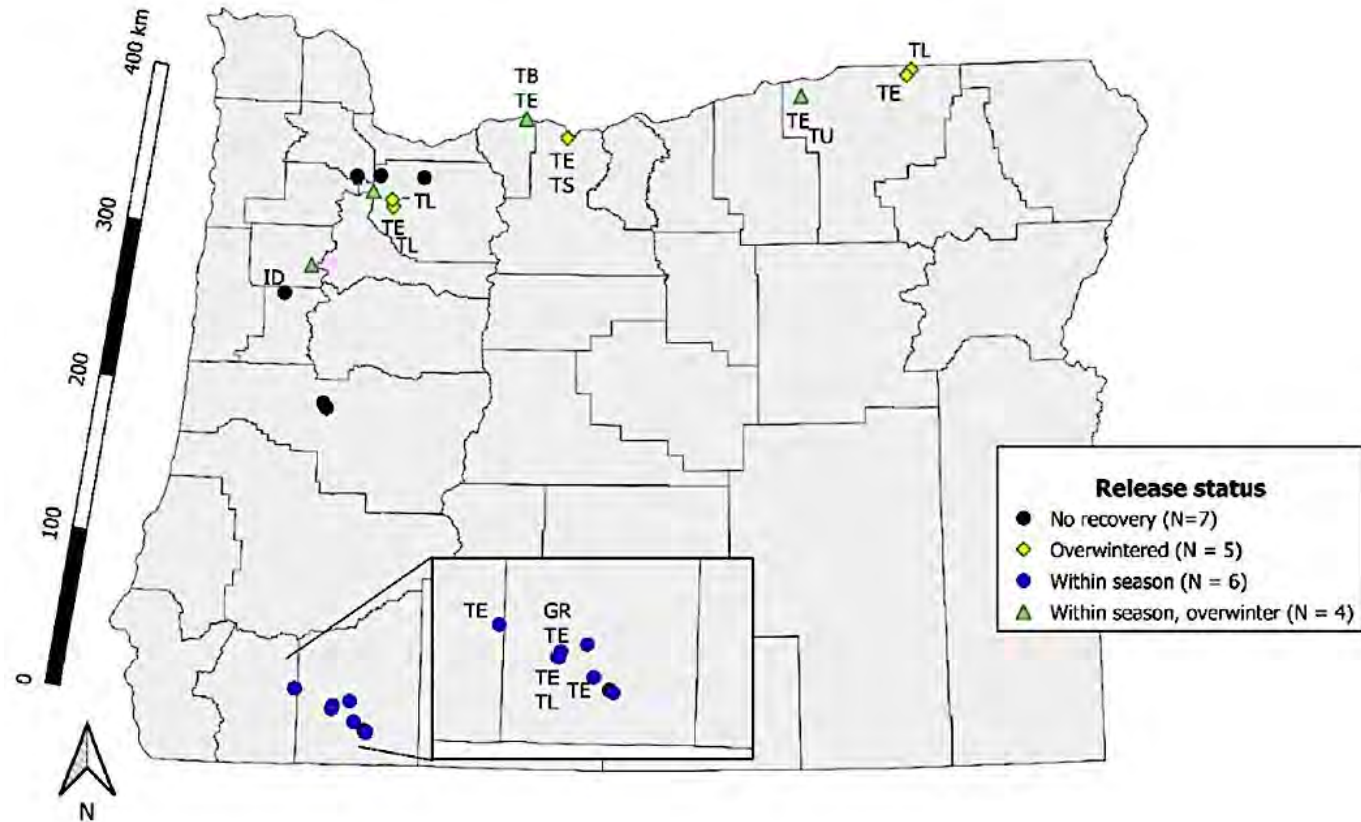


Figure 2. Oregon (USA) locations of *T. japonicus* redistribution and evaluation for short-term recovery and release status. Release status refers to the classification of wasps never being recovered after 3 days or 1 year (No recovery), being recovered after three days (Within season), in the following season (Overwintered) and both after three days and in the following season (Within season, overwinter). Abbreviations next to sites indicate native Platygasteridae detected on yellow sticky cards or emerged from sentinel *H. halys* eggs. TB = *Trissolcus brochymenae*, TE = *T. euschisti*, TS = *T. strabus*, TU = *T. utahensis*, TL = *Telenomus*, GR = *Gryon*, ID = *Idris*.

Summary

- Assess dispersal patterns & parasitism of samurai wasps via BMSB egg masses & sticky cards, focusing on specialty crop areas
- Collected & analyzed wild, fresh, & frozen BMSB egg masses placed in areas where samurai wasps were released or previously found
 - 22.4% parasitism in 2018
 - 26.8% parasitism in 2019
- Placed & recovered sticky traps to monitor TJ dispersal in 2019
 - Parasitoid wasps found at 39 of 63 sites
- Future work will involve expanding our study sites to addt'l habitats & OR ecoregions

Acknowledgements

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