

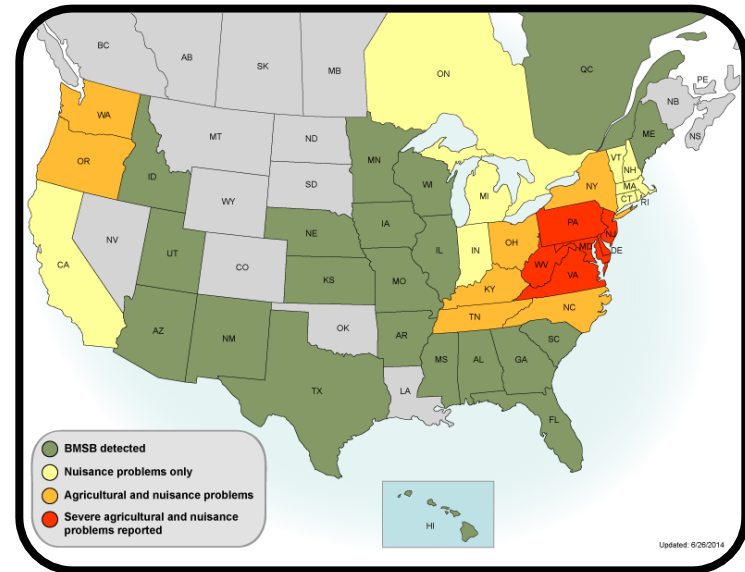
Entomology Society of America
National Meeting: Portland, OR
November 16th, 2014

Patterns and
predictions for
visual sampling
of the brown
marmorated
stink bug

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George Hamilton
Rutgers University



Halyomorpha halys (BMSB)



Leskey, T. (2014, 06 26). *Where is bmsb?*. Retrieved from <http://www.stopbmsb.org/where-is-bmsb/>

Detection in Peaches



Sampling Methods

- Timed visual
- Beat sheet
- Blacklight
- Pheromone

Leskey, T. C., & Hogmire, H. W. (2005). Monitoring stink bugs (Hemiptera: Pentatomidae) in mid-Atlantic apple and peach orchards. *Journal of economic entomology*, 98(1), 143-153.

Research Topic



To characterize the relationship between timed visual observations of brown marmorated stink bugs and the time of day sampling occurred at.

Null hypothesis: average BMSB field counts will not differ between times of the day.

Study Site

Rutgers Agricultural Research
and Extension Center



Rutgers Fruit and Ornamental
Research Extension Center



Study Design



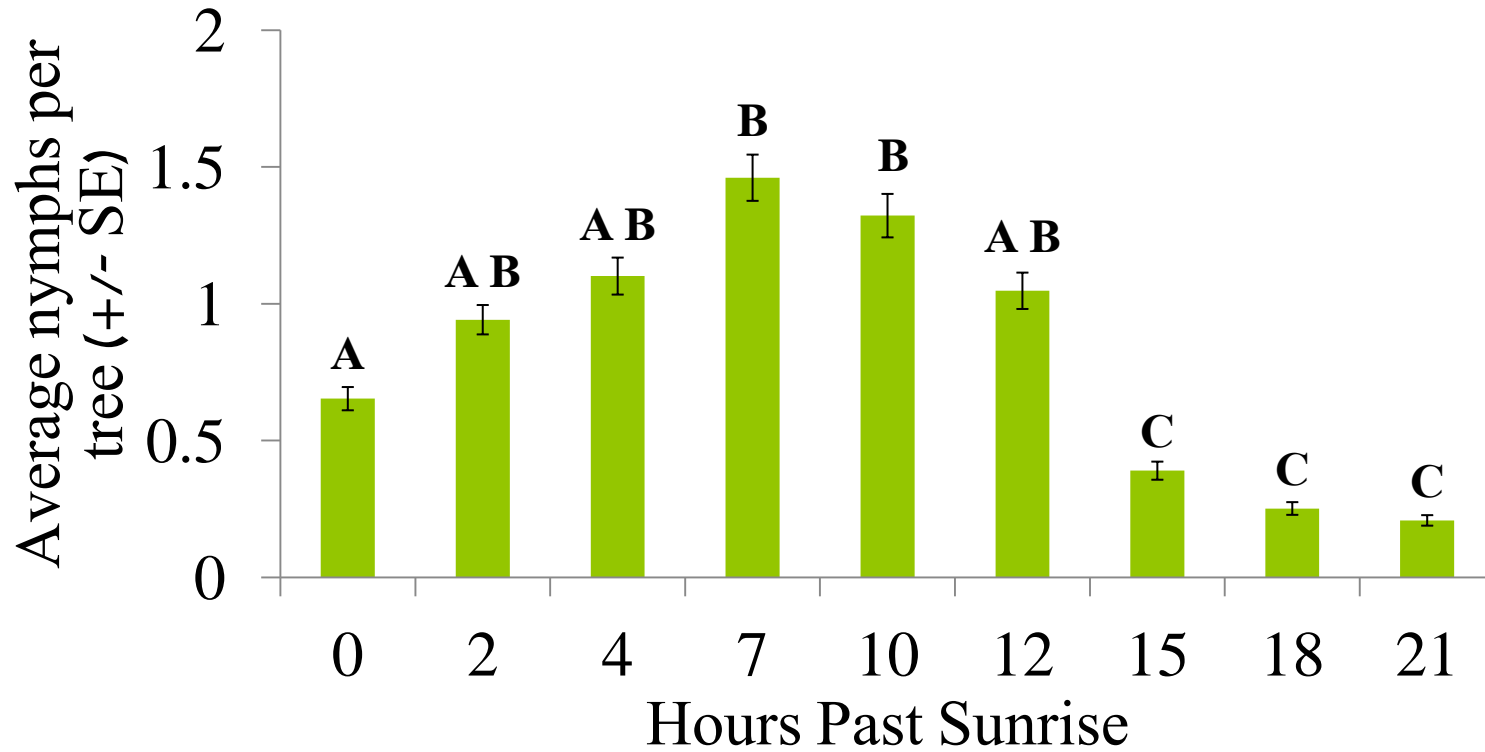
- Two minute visual counts were used as the method of detection.
- Data were collected at 0, 2, 4, 7, 10, 12, 15, 18, and 21 hours past sunrise.

Study Design



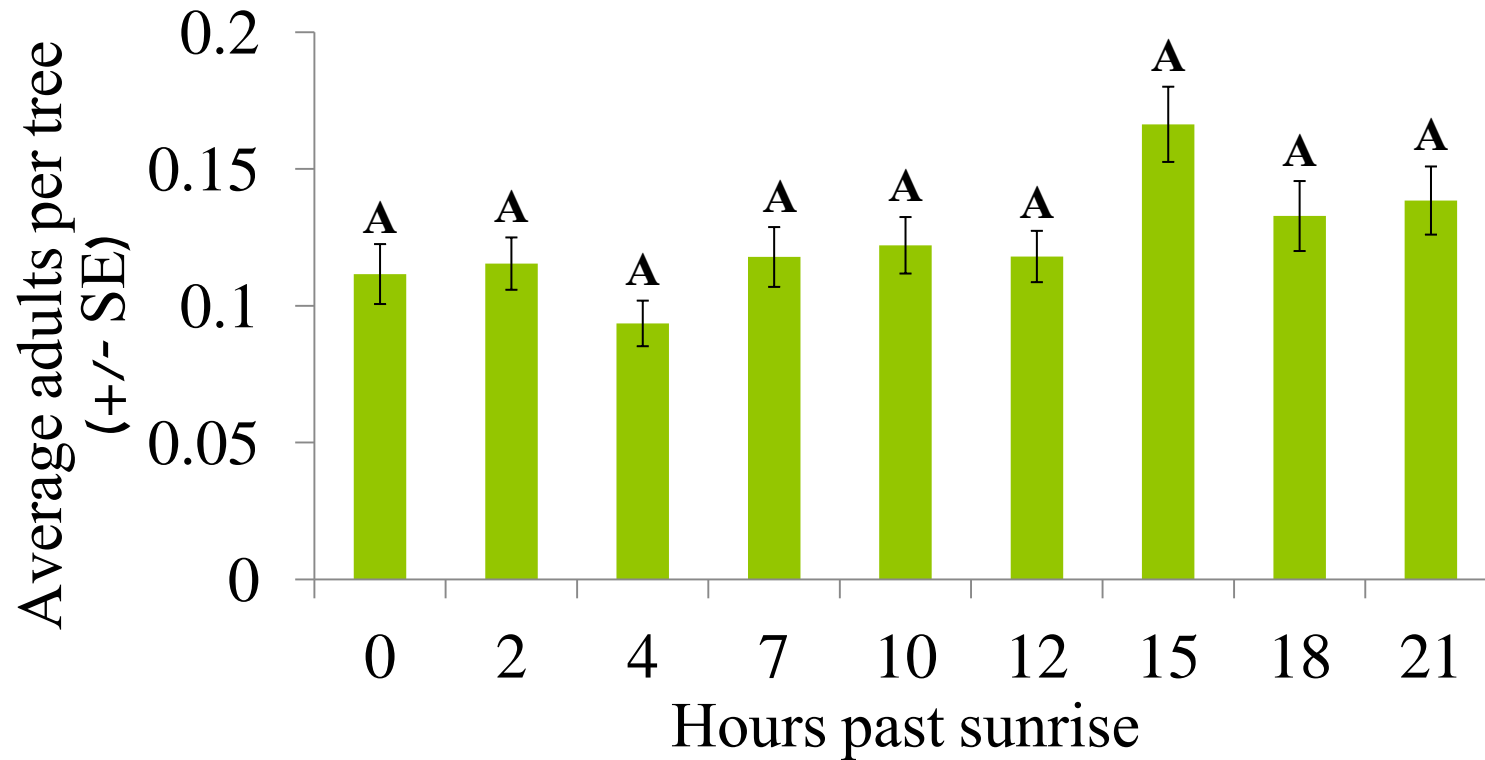
- Night time counts were performed using head lamps.
- Start times were randomized over the course of the summer.

Results: Nymphs



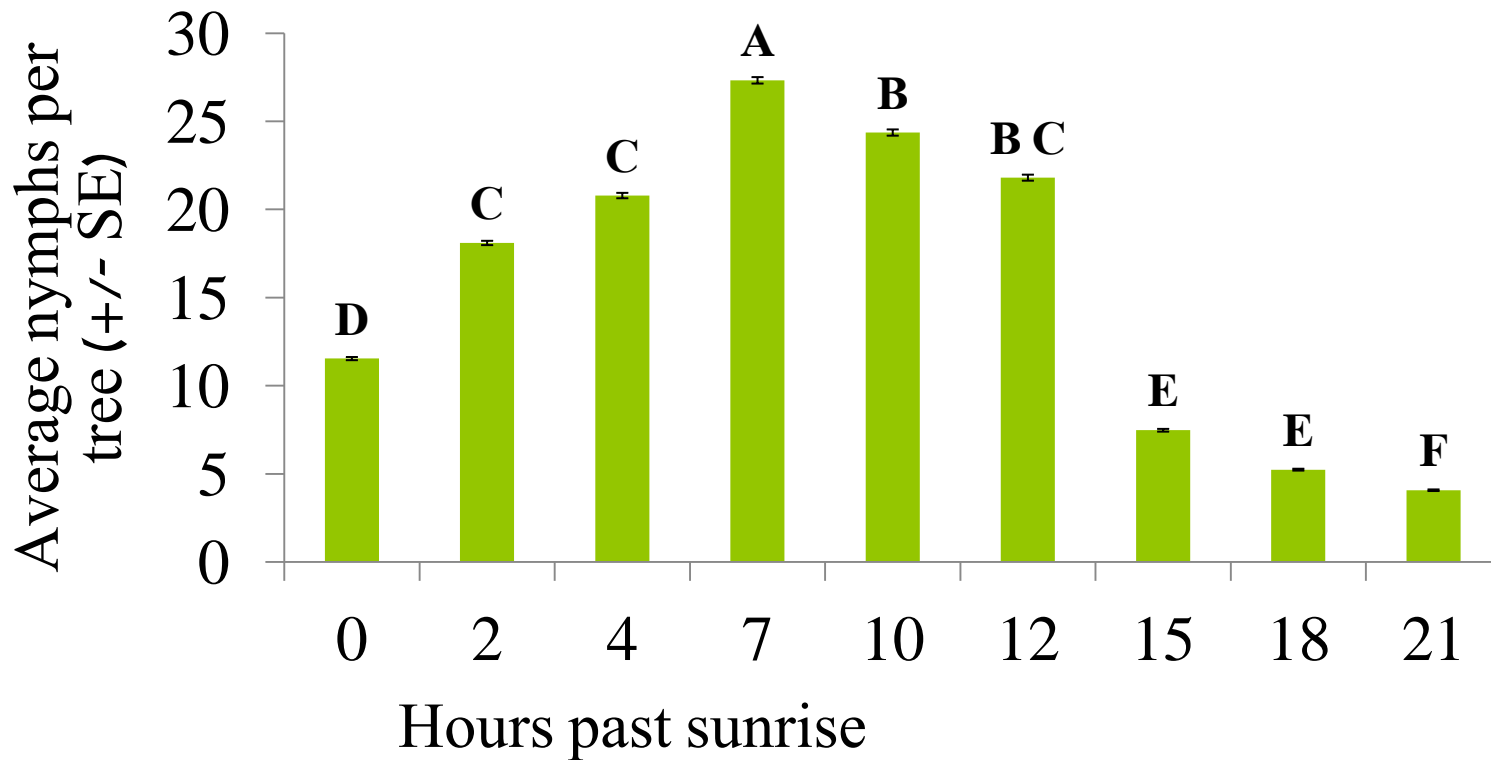
Columns with the same letters are not significantly different at $p \leq 0.05$, Pairwise Wilcoxon Rank Sum Test

Results: Adults



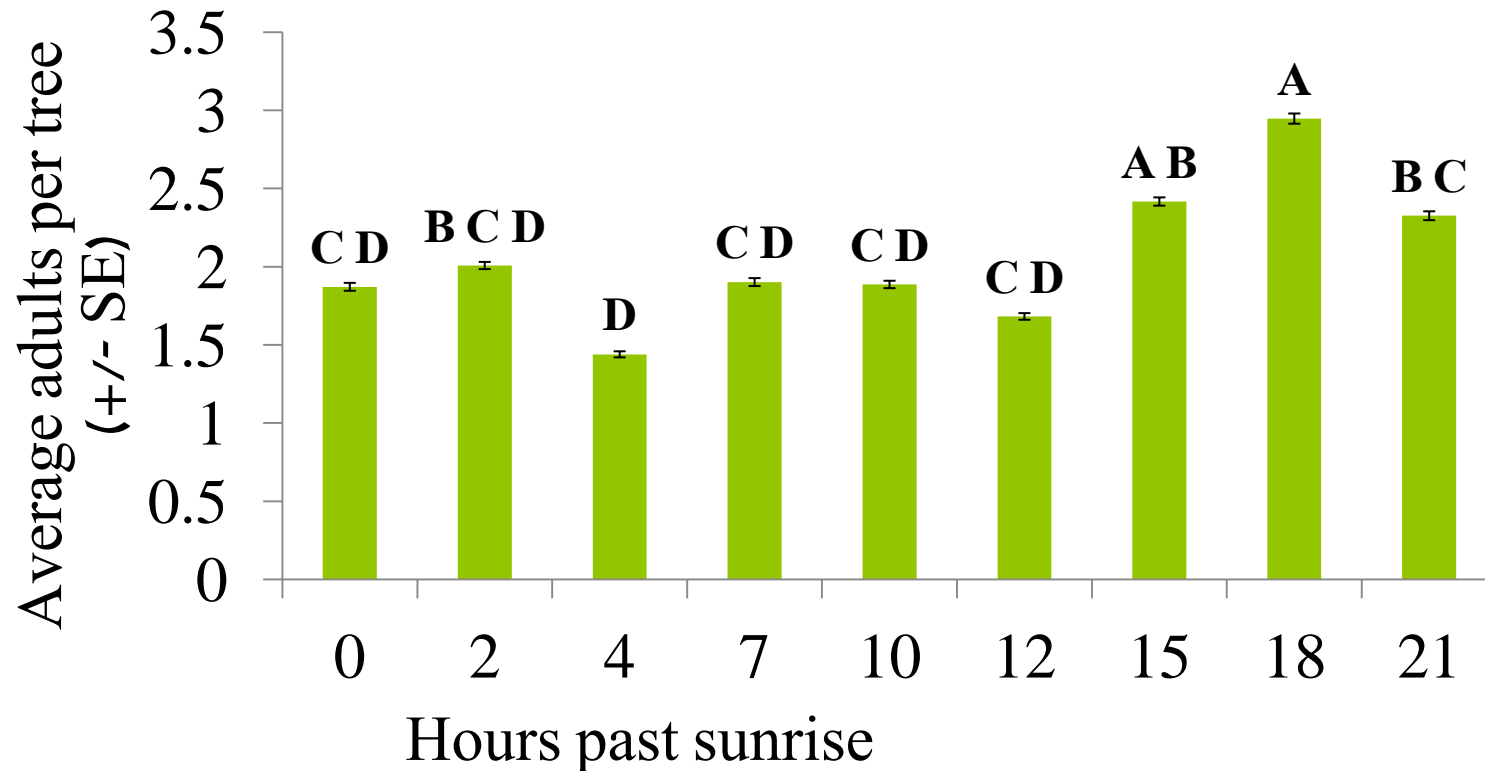
Columns with the same letters are not significantly different at $p \leq 0.05$, Pairwise Wilcoxon Rank Sum Test

Results: RAREC Nymphs 2013



Columns with the same letters are not significantly different at $p \leq 0.05$, Pairwise Wilcoxon Rank Sum Test

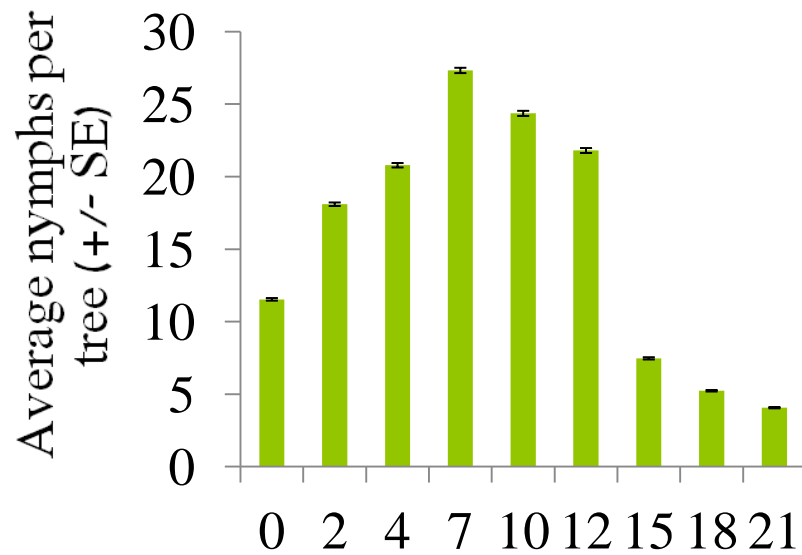
Results: RAREC Adults 2013



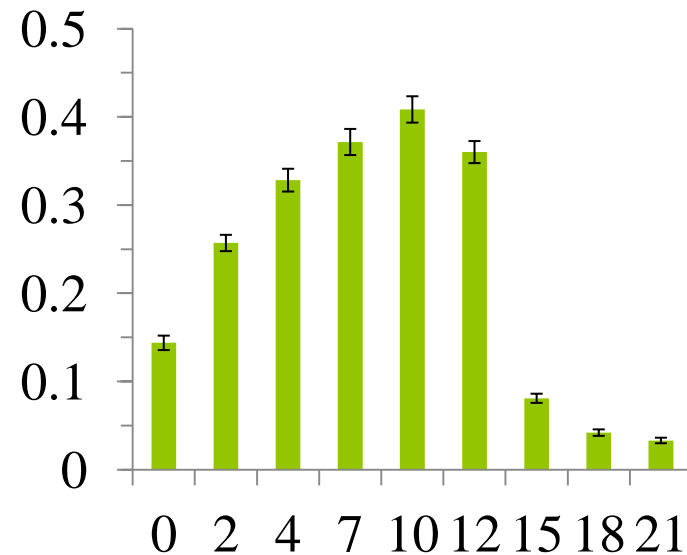
Columns with the same letters are not significantly different at $p \leq 0.05$, Pairwise Wilcoxon Rank Sum Test

High vs Low Populations

Summer 2013: Nymphs

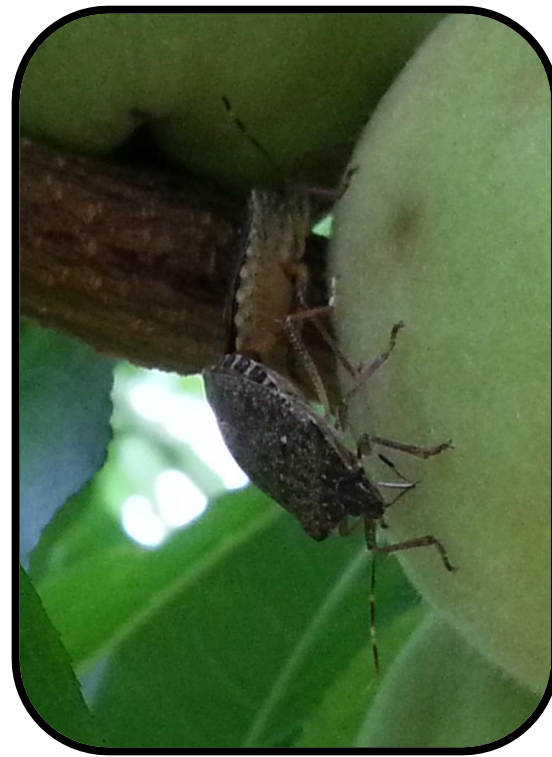


Summer 2014: Nymphs

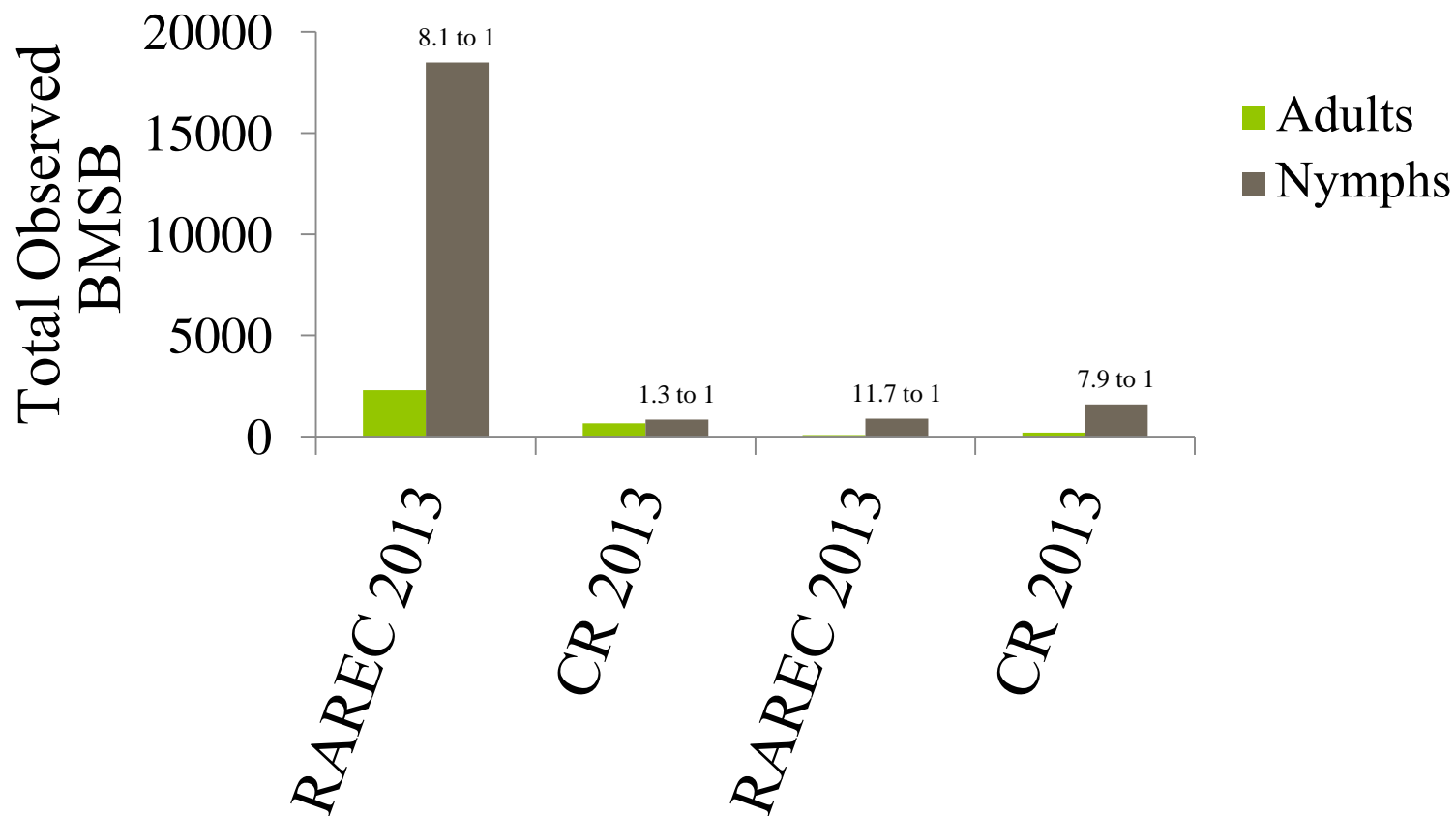


Hours past sunrise

All Life Stages Love Peaches



Ratio of Nymphs to Adults



Research Topic



To characterize the effect that different observers have on the comparability of data sets.

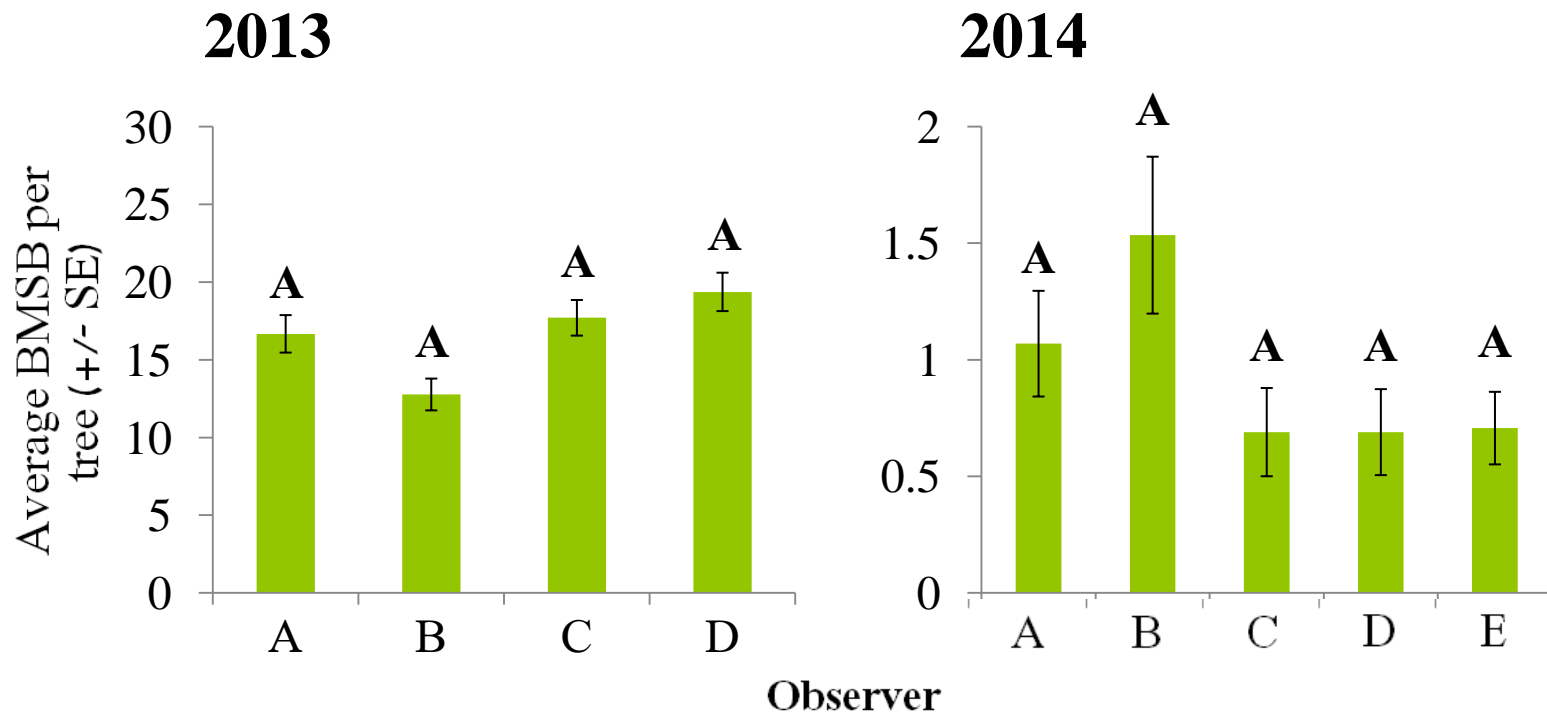
Null hypothesis: All observers will detect the same number of BMSB.

Study Design



- Two minute visual counts were used as the method of detection.
- All observers sampled the same set of trees in series.

Results: Observer Variance



Columns with the same letters are not significantly different at $p \leq 0.05$, Blocked ANOVA Test

Conclusions



- There are differences in the observed BMSB depending on the number of hours past sunrise sampling occurs.
- Data collected by different observers does not vary significantly.

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Questions?

Thank you!