

Brown marmorated stink bug post-emergence reproductive ecology

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Introduction

After adults emerge from overwintering sites in western NC:

- What is the longevity of BMSB adults post-emergence?
- When do BMSB oviposit egg masses?
- How many egg masses do BMSB pairs produce?
 - Can we predict the number of nymphs that will be present later in the season?



Methods

- Collected BMSB moving into overwintering sites
- Allowed BMSB to overwinter in boxes

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↑ *Upside-down view of wooden BMSB box with cardboard floor in place*



↓ *Upside-down view of wooden BMSB box with cardboard floor removed for deployment*

Overwintering stink bug boxes

**Photo Credit:
Chris Bergh**

Coroplast dome

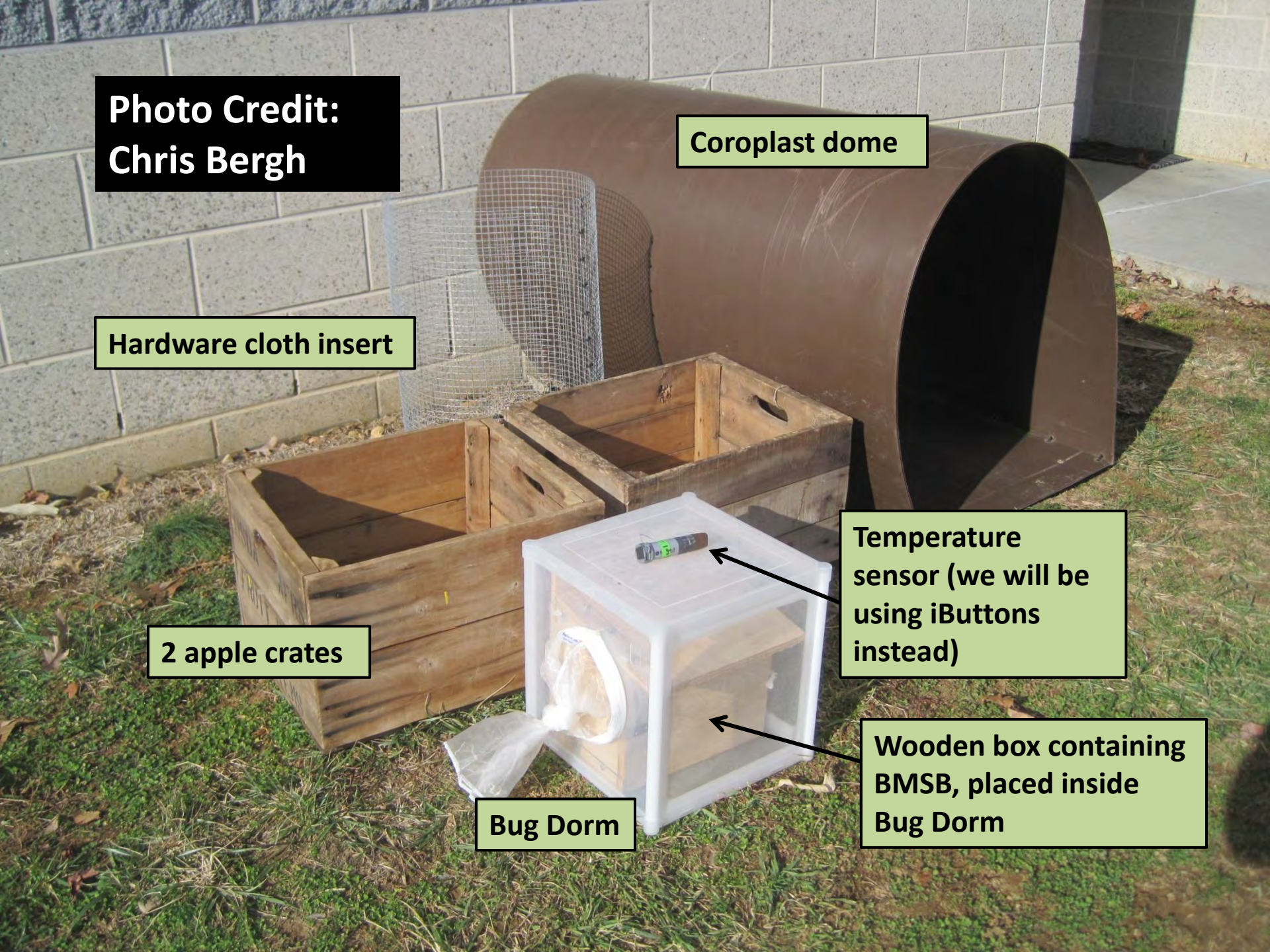
Hardware cloth insert

2 apple crates

**Temperature
sensor (we will be
using iButtons
instead)**

Bug Dorm

**Wooden box containing
BMSB, placed inside
Bug Dorm**



Overwintering stink bugs



112 cages

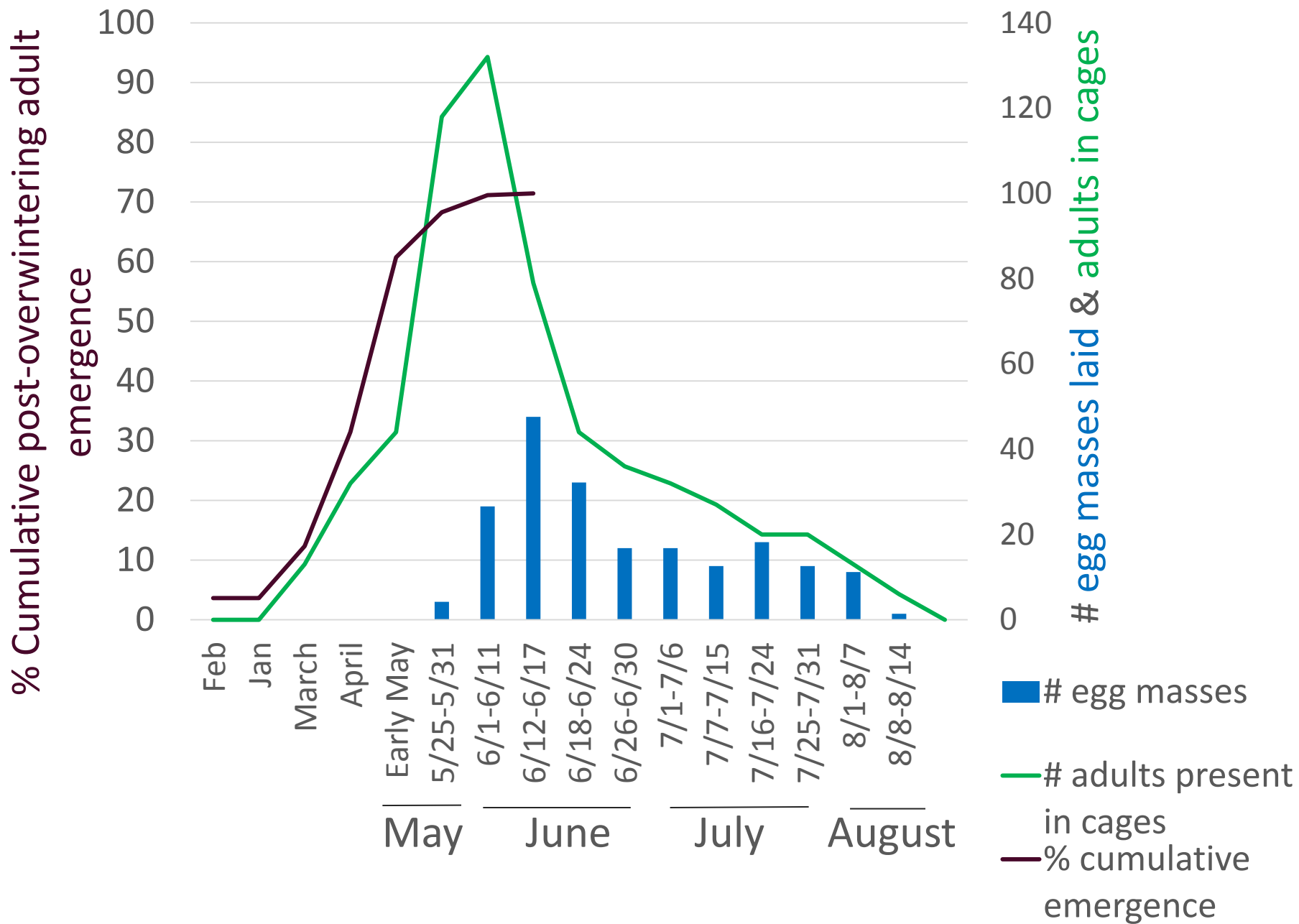




Results

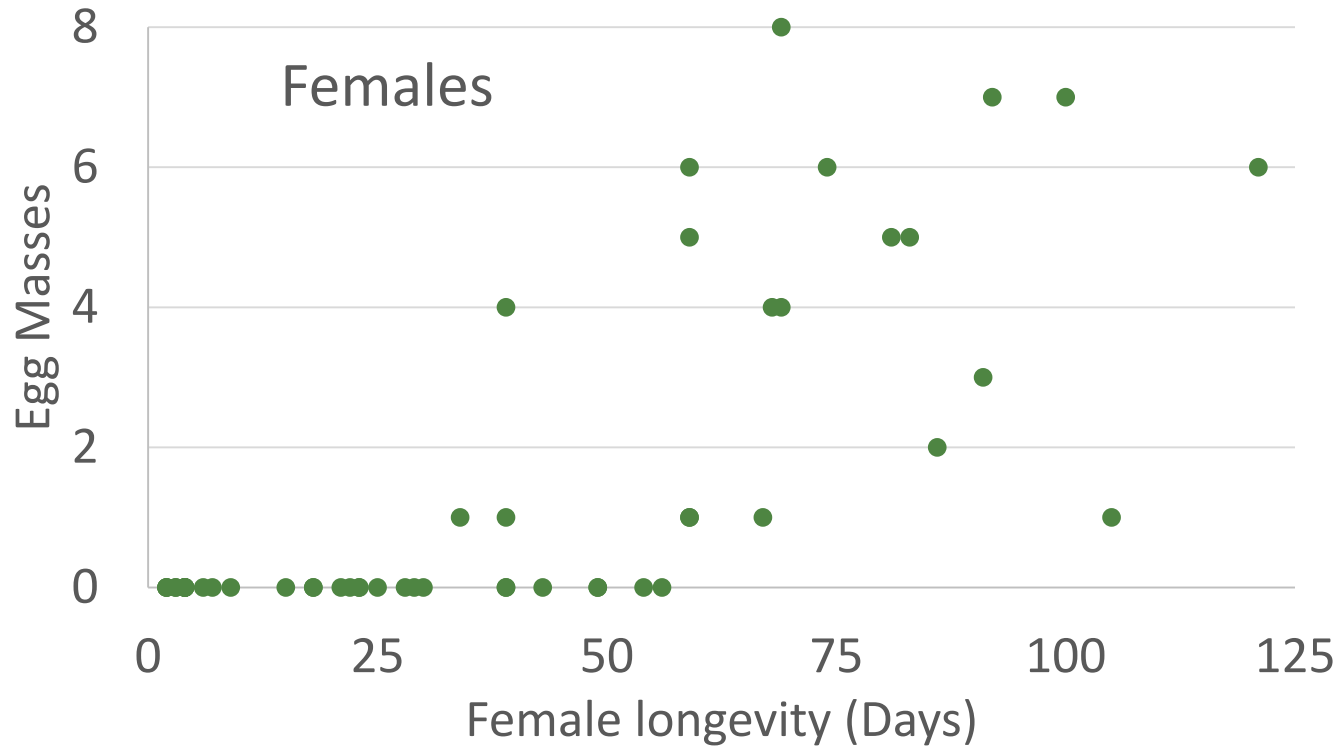
- 143 total egg masses
- The most eggs were oviposited in June (6/12-6/17)
- The first egg mass was laid on May 27 and the last was on Aug 8

| Summary by month | | |
|------------------|--------------|--------------|
| Month | # Egg Masses | % Cumulative |
| May | 3 | 2.1 |
| June | 88 | 63.6 |
| July | 43 | 93.7 |
| August | 9 | 100.0 |





Longevity of Adults



Number of potential BMSB nymphs

- Nielsen et al. 2008
- 53.3 DD for eggs to hatch
- 537.63 DD for eggs to adults
- The cumulative potential number of nymphs was estimated:
 - cumulative # of nymphs hatched by date – the number of nymphs that had reached adulthood by date

| # egg masses | Estimated # eggs | Day laid | Day hatched (53.3 DD) | Day egg to adult (537.63DD) |
|--------------|------------------|-----------|-----------------------|-----------------------------|
| 1 | 28 | 5/27/2016 | 6/5/2016 | 7/31/2016 |

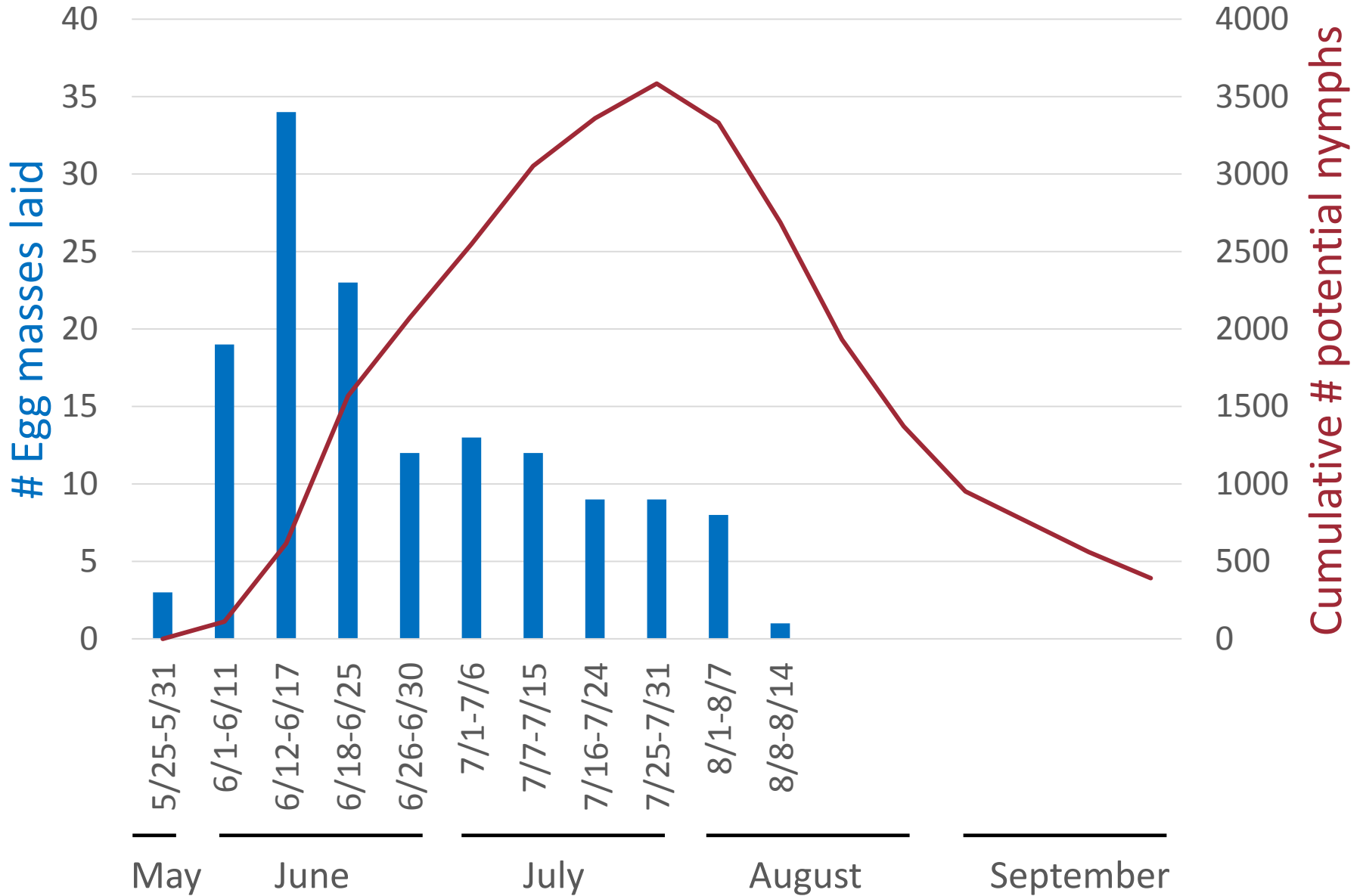
Results



egg masses



nymphs



Conclusion

- BMSB can be caged and tracked throughout the season on peach trees in western NC if given supplemental food
- BMSB females can live up to several months post-emergence in western NC
 - Maximum 121 days, mean 39.6 days
- BMSB adults can produce egg masses from late May to early August in western NC, with the most oviposited in June
- Preliminary work
 - modeling and life table analysis in the future

