



# Seasonal Dynamics of the American Burying Beetle (*Nicrophorus americanus* Olivier) in Eastern Oklahoma.

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## **Interspecific competition effects on survival of the American Burying Beetle (*Nicrophorus americanus* Olivier) in Eastern Oklahoma.**

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### **Abstract**

American Burying Beetle (ABB) (*Nicrophorus americanus*) populations have been in decline since the early 1900's, and much effort has been put into studying the survival of this now endangered species. Burying beetles (Silphidae), which rely solely on carrion as both a reproductive and food resource, exclude most other competitors by burying small mammal and other vertebrate carcasses underground. Fertilized females may reproduce alone or in groups, but a carcass is usually buried by a male and female pair.

Small carrion is a short-lived, high-quality resource to many specialized insects. The competition for this valuable resource is strong and has probably shaped many ecological, behavioral, and physiological traits of the associated insects. Not only do the burying beetles compete with insects, they must also compete with vertebrate scavengers.

In southeastern Oklahoma, the ABB compete directly or indirectly with many other insect species. After two years of sampling in this region, the four most abundant other insect species trapped in conjunction with the ABB were the red-lined carrion beetle *Necrodes surinamensis*, the congener *Nicrophorus orbicollis*, the ridged carrion beetle *Oiceoptoma inaequale*, and the beetle *Euspilotus assimilis* from the Family Histeridae.

We completed 2400 trap-nights using 170 above-ground pitfall traps that were placed in seven separate areas within Pittsburg and Hughes counties in southeastern Oklahoma. Preliminary results based on flight times and capture data indicate that the strongest competitor for reproductive resources is the congener *N. orbicollis*

# Objective 3

Compare vegetation diversity and structure, condition class of habitat, soil characteristics, proximity to water, inter-specific competition, and small mammal and bird communities among designated release sites and ABB population monitoring sites in Eastern Oklahoma in relation to ABB activity levels.

# Sampling

## James Collins WMA

- 18 sites (relocation site)

## McAAP

- 19 sites

## Private Land

- 18 sites



# Results

## James Collins WMA

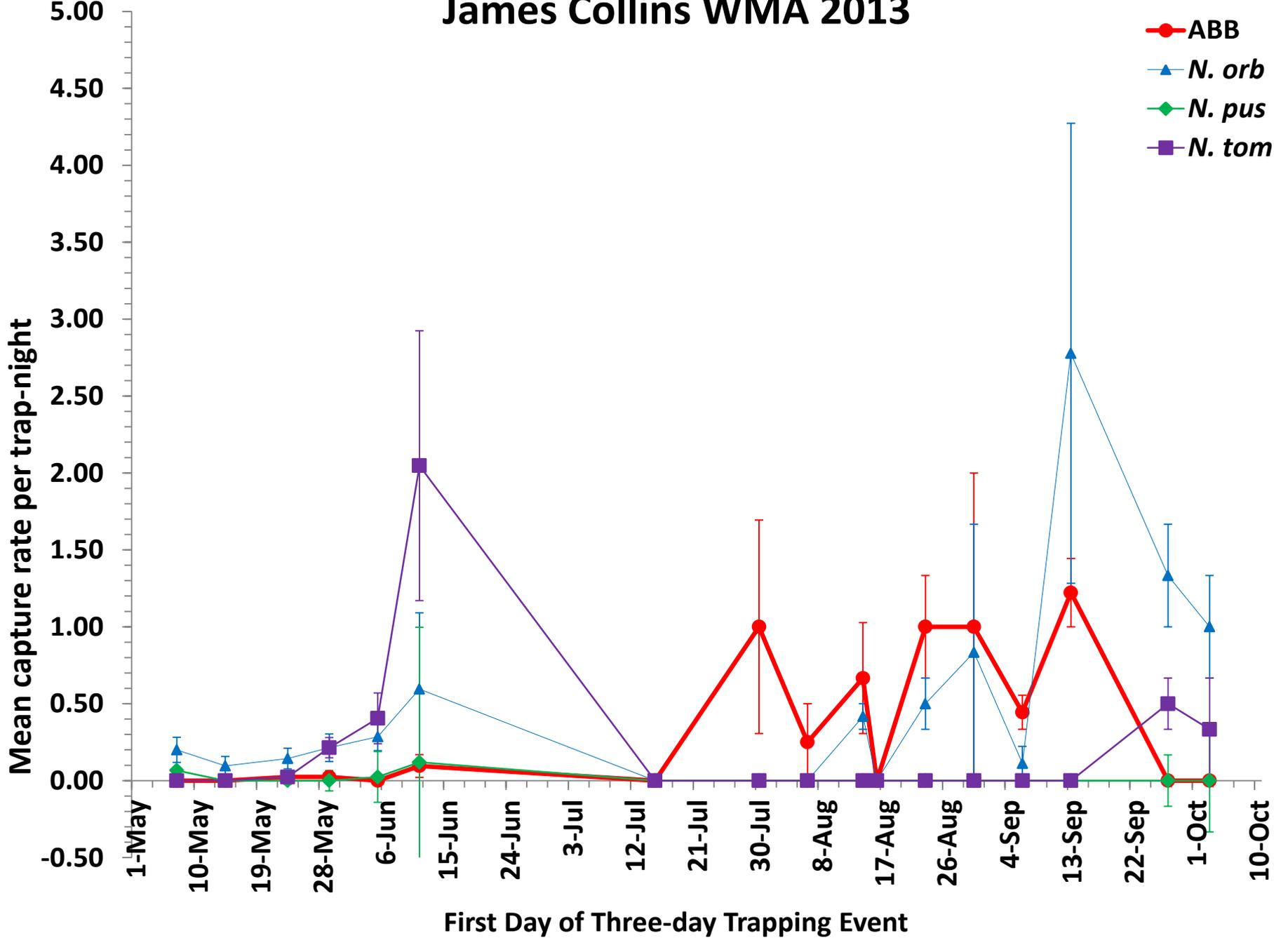
### 2013 (294 trap-nights) 18 traps

- 53 **ABBs** (0.18 capture rate)
- 110 *N. orbicollis*
- 7 *N. pustulatus*

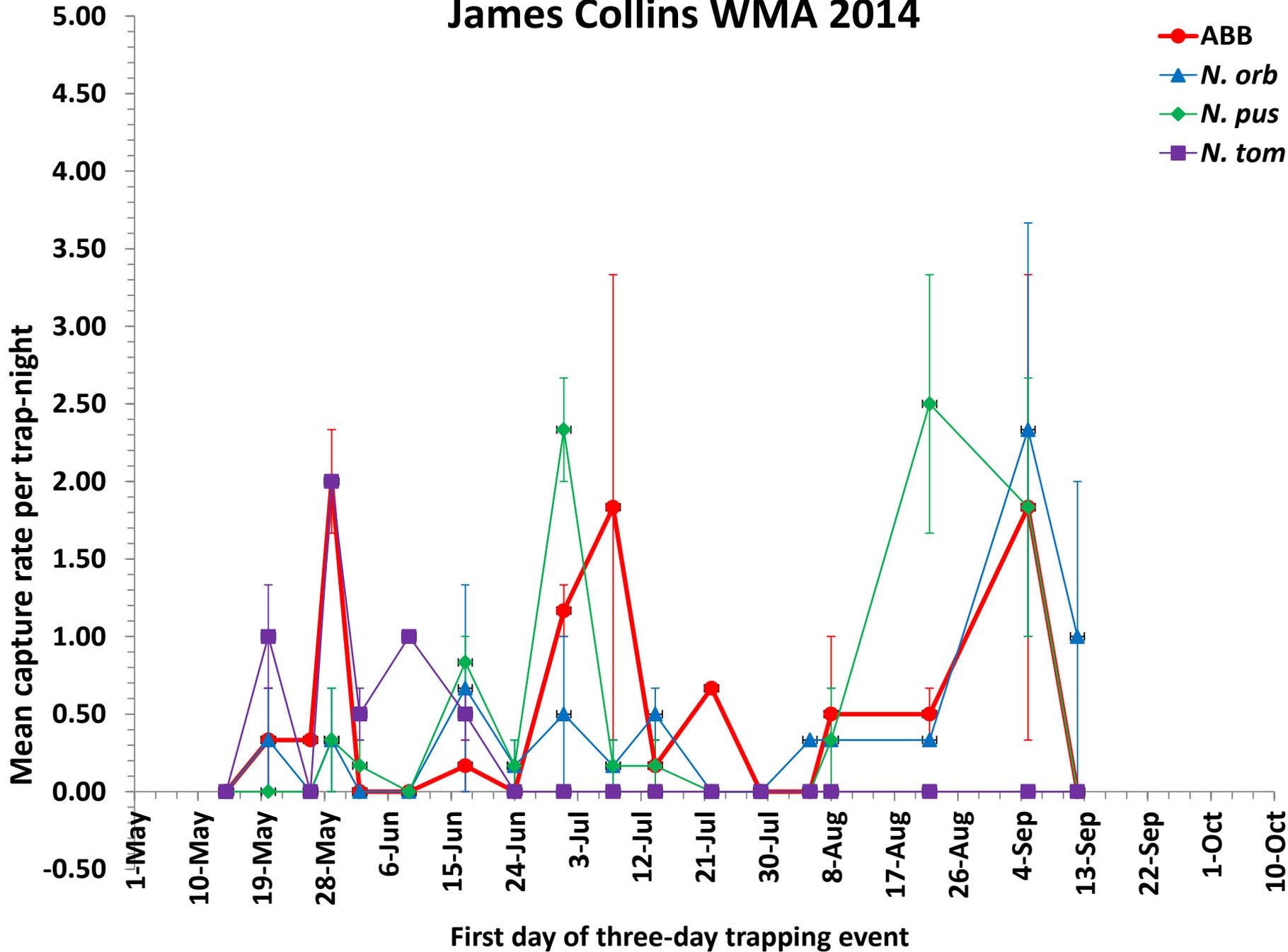
### 2014 (111 trap-nights) 3 traps

- 57 **ABBs** (0.51 capture rate)
- 42 *N. orbicollis*
- 53 *N. pustulatus*

# James Collins WMA 2013



# James Collins WMA 2014



# Results

## Lamar Site

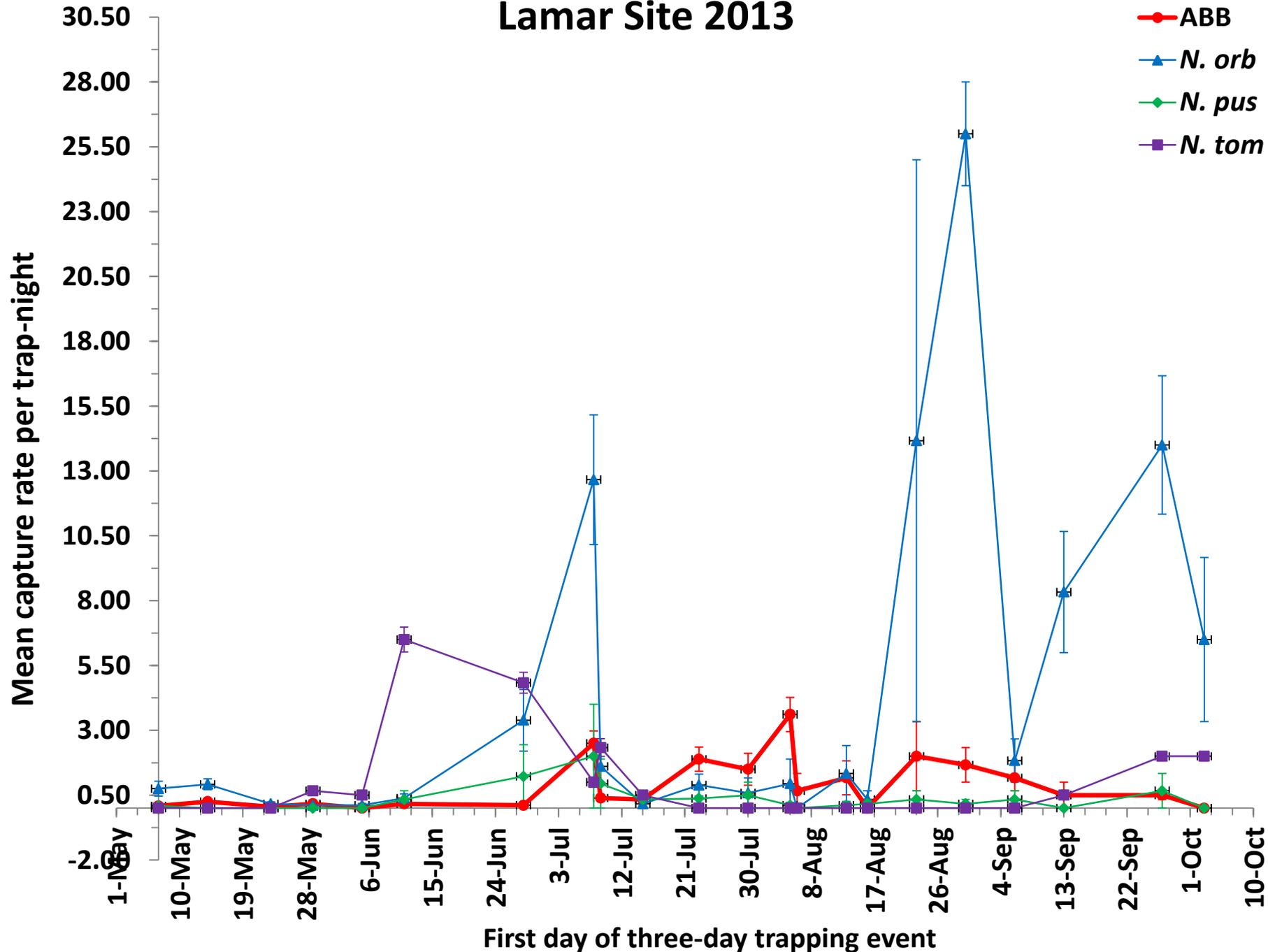
### 2013 (270 trap-nights) 18 traps

- 233 **ABBs** (0.86 capture rate)
- 700 *N. orbicollis*
- 90 *N. pustulatus*

### 2014 (24 trap-nights) 2 traps

- 15 **ABBs** (0.63 capture rate)
- 33 *N. orbicollis*
- 19 *N. pustulatus*

# Lamar Site 2013



# Results

## McAAP

### 2013 (84 trap-nights) 12 traps

- 78 **ABBs** (2.79 capture rate)
- 39 *N. orbicollis* (1.39 capture rate)
- 9 *N. pustulatus* (0.32 capture rate)

### 2014 (267 trap-nights) 18 traps

- 159 **ABBs** (1.79 capture rate)
- 202 *N. orbicollis* (2.27 capture rate)
- 173 *N. pustulatus* (1.94 capture rate)

# McAAP 2014

