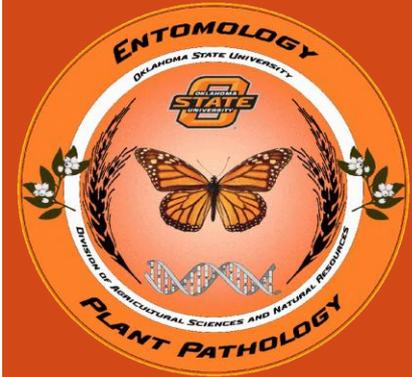


# EXPANDED METHODOLOGIES FOR LONG-TERM MONITORING, RELOCATION AND SURVIVAL, AND POPULATION DENSITY ESTIMATES OF ABB.

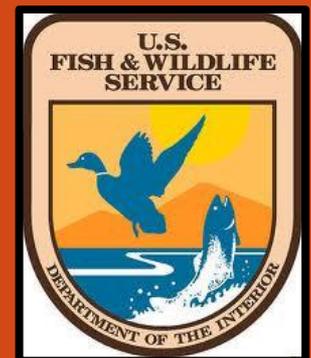


Kyle Risser

Dr. Kris Giles

Dr. Carmen  
Greenwood

Oklahoma State  
University



**ABB Populations in SE Oklahoma: updates on objectives 1 and 2 of the phase II proposal: Expanded methodologies for long-term monitoring, relocation and survival, and population density estimates of ABB.**

Kyle Risser, OSU Graduate student

**Abstract**

Historically, the American Burying Beetle (ABB) (*Olivier*) (Coleoptera; Silphidae) was found across the eastern United States but is currently believed to be limited to three viable populations: SE OK, Block Island RI, and central NE. Several important questions are being evaluated: will ABB trap and relocate protocols successfully remove ABB populations from trap-out sites, will ABBs survive relocation, will released ABB remain in or near the relocation site, and do ABB populations remain at stable levels following relocations? Two years of trap and release data have been collected. Despite achieving temporary trap out requirements, ABB have been captured from successfully “trapped out” sites both pre and post development. ABB have been recaptured after relocation, indicating that ABB survive relocation using the current protocol and some individuals remain in the new area. Documenting stable ABB populations requires a time-frame longer than the duration of this project, however, accurate and precise density estimates are needed to address this question. The McAlester Army Ammunition Plant (McAAP), located in SE OK, has a robust population of ABB persisting throughout its boundaries and we are estimating population density of beetles through intensive sampling and mark and recapture techniques. Based on two years of data, the standard monitoring trapping protocol underestimates local population abundance.

# QUESTIONS I WILL ADDRESS

- 1) Do trap and relocate protocols successfully remove all ABB from an area?
- 2) Do ABB survive relocation?
- 3) Do ABB remain near relocation site?
- 4) Do ABB populations remain at stable levels following relocation?
  - Introducing too many individuals to a single location can potentially cause a population crash.

# DO TRAP AND RELOCATE PROTOCOLS SUCCESSFULLY REMOVE ALL ABB FROM AN AREA?

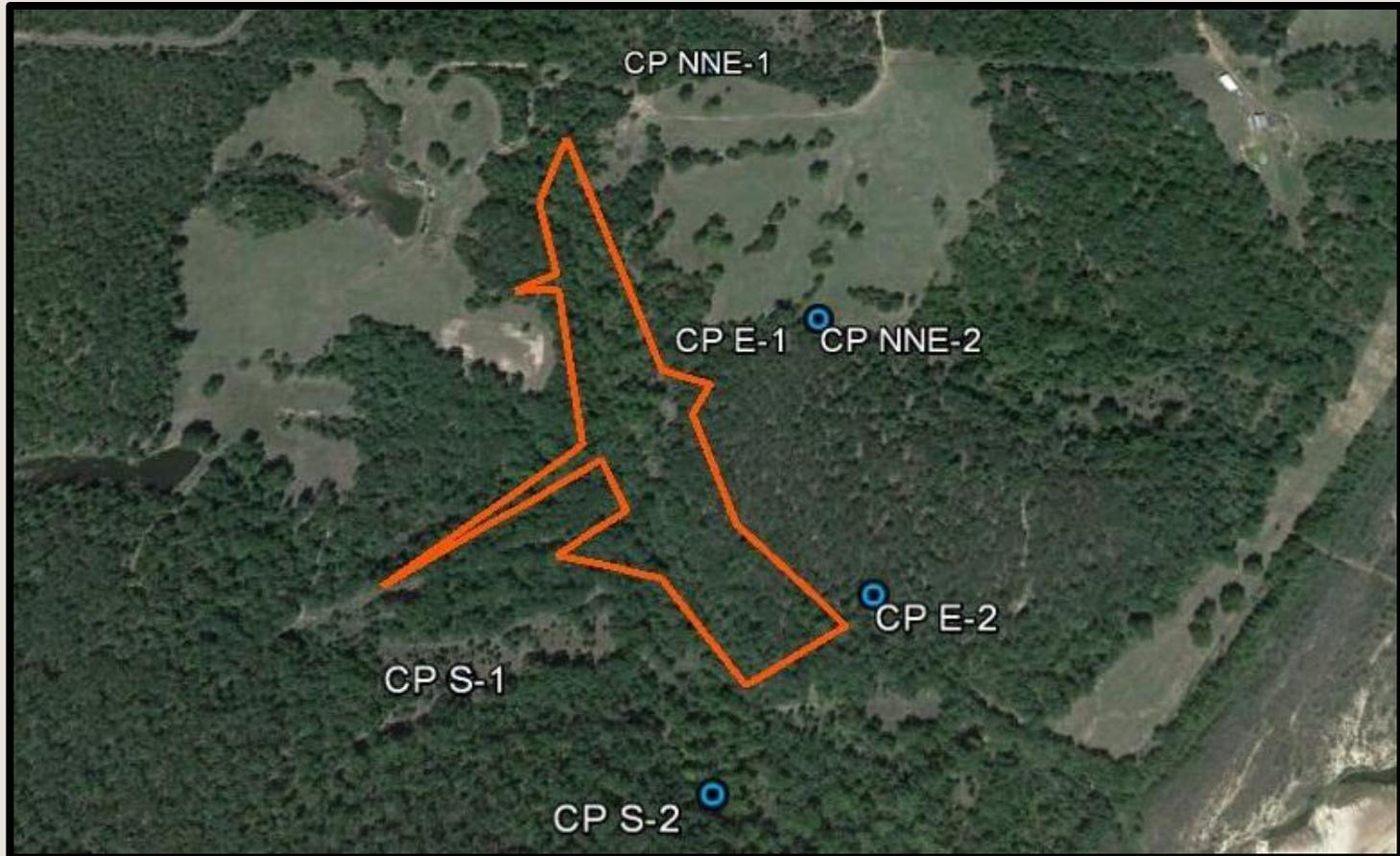


2012 (Pre development) : 0.2292 ABB/Trap Night

2013 (Immediately Post Development): 0.1667 ABB/Trap Night

2014 (1 Year Post Development): 0.6800 ABB/Trap Night

# DO TRAP AND RELOCATE PROTOCOLS SUCCESSFULLY REMOVE ALL ABB FROM AN AREA?

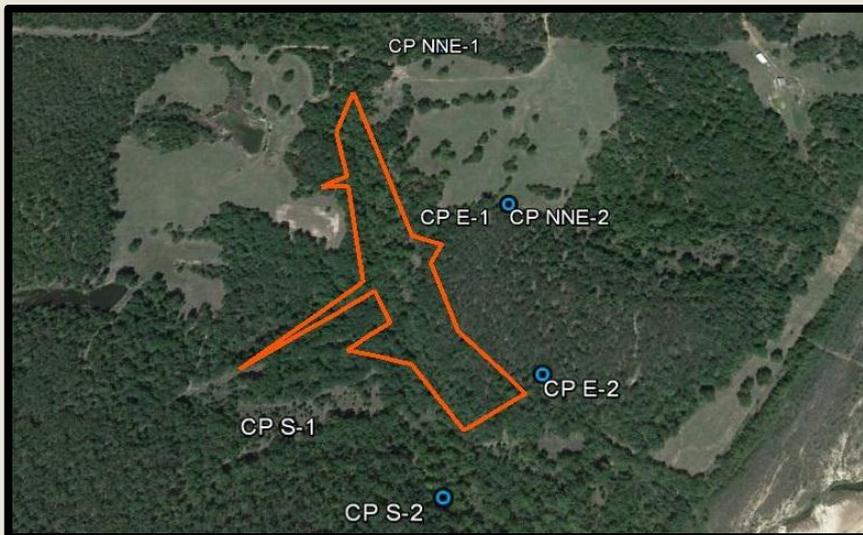


Clark Pond was officially cleared on: 8/17 (66 Captures) .

Captured 24 ABB through rest of season.

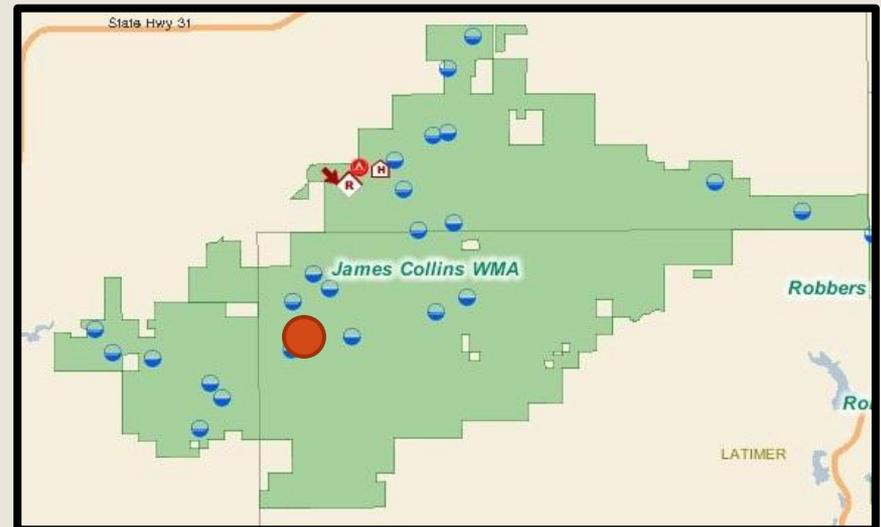
# DO ABB SURVIVE RELOCATION?

## Future Developed Land Removal of ABB Lamar, OK



Lamar Site: 1,100 acres

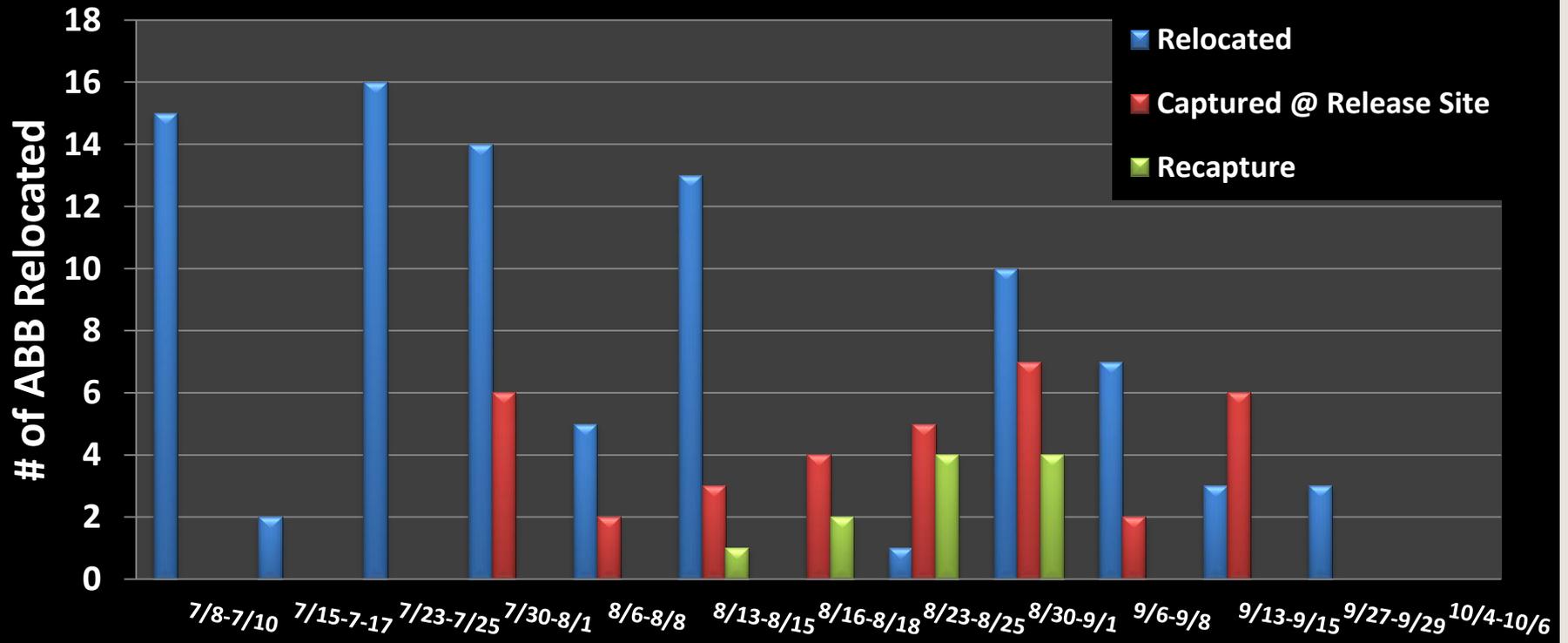
## Approved Relocation Site James Collins Wildlife Management Area



JCWMA: 21,353 acres

# DO ABB SURVIVE RELOCATION?

## ABB Captured and Relocated



### Trapping Events in 2013 (N=132)

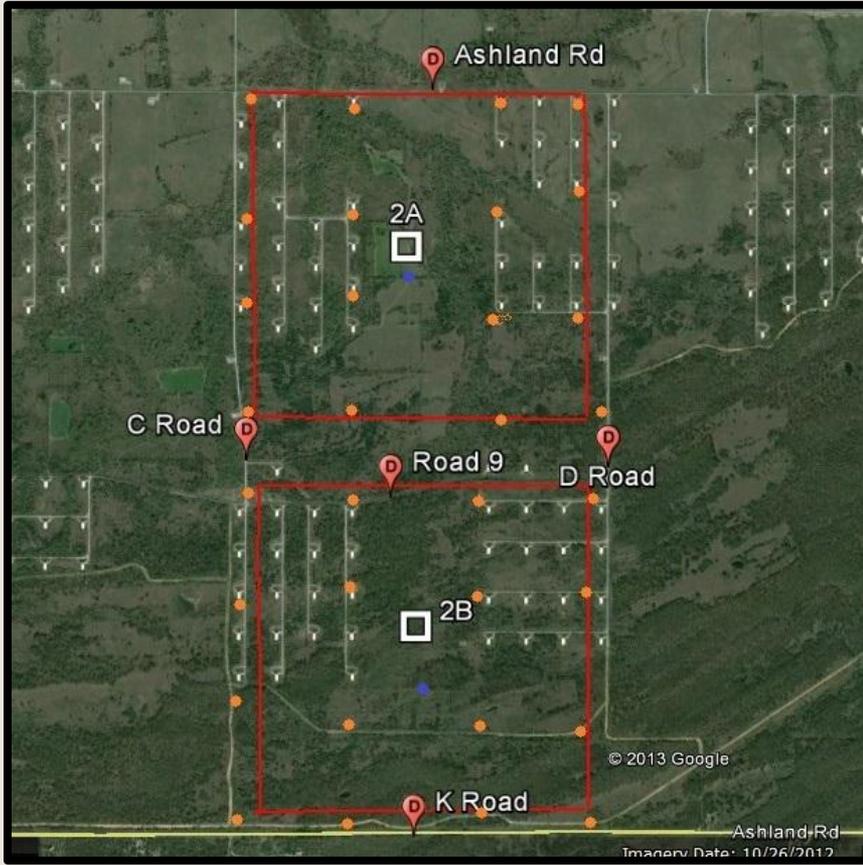
ABB Relocated from Clark Pond (Development Site) to James Collins WMA (Release Site)

# DO ABB POPULATIONS REMAIN AT STABLE LEVELS FOLLOWING RELOCATION?

- The length of this study is not adequate to truly answer this question.
- We need to develop a method of easily getting an absolute population density estimate before this can be attempted.

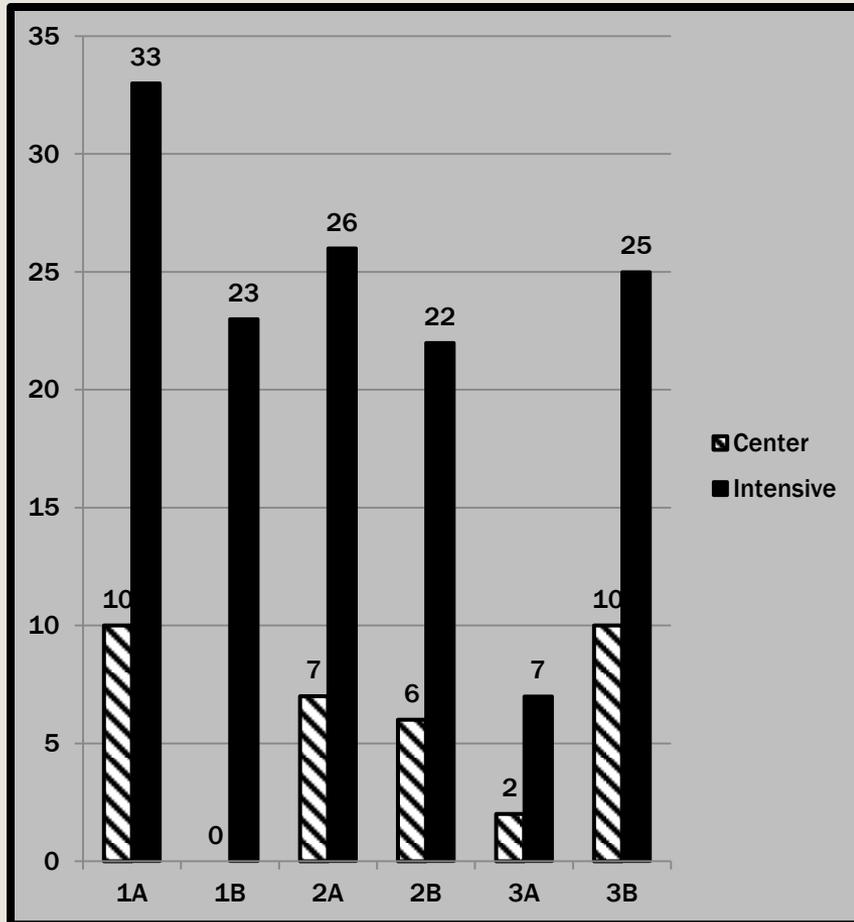


# HOW CAN WE GET AN ABSOLUTE DENSITY OF ABB?



- Intensive Sampling
  - Oversaturate Environment
  - Shows Us:
    - Success of 1 Trap
    - Movement
    - Closest to Total Population Estimate

# HOW CAN WE GET AN ABSOLUTE DENSITY OF ABB?



- Many more ABB in the grids vs the single traps.
- Develop a conversion factor for single trap → total population.

# CONCLUSIONS

- 1) Do trap and relocate protocols successfully remove all ABB from an area?**
  - Maybe, but only for a very short period of time.
  - ABB are so mobile (can fly over 1-2km a night) that even if you remove all individuals, new ABB can recolonize the area over night.

# CONCLUSIONS

## 2) Do ABB survive relocation?

➤ Yes!



# CONCLUSIONS

## 3) Do ABB remain near relocation site?

- Some do. We did get recaptures at the relocation site.



# CONCLUSIONS

## 4) Do ABB populations remain at stable levels following relocation?

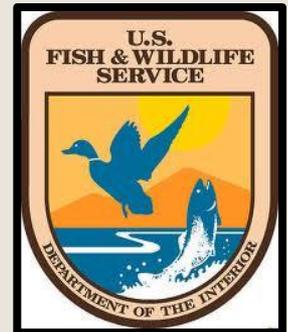
- 3 years is not long enough to sufficiently answer this question.
- So far it seems that, due to the high mobility of ABB, that many of the released beetles leave the area.
- A long term study would be necessary to assess if populations at release sites remain stable.



# ACKNOWLEDGMENTS



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# THANK YOU

