Analysis of the gopher tortoise tick (Amblyomma tuberculatum) and its distribution at the FAU Conservation Area in southeastern Florida

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ABSTRACT

Gopher tortoise habitat quality has been declining due to intense development in South Florida. As a result, it is possible that tortoises are now more susceptible to disease and parasites such as the gopher tortoise tick, Amblyomma tuberculatum. To expand our limited knowledge, on the tick species, we conducted transect surveys and employed point capture techniques at the Conservation Area at Florida Atlantic University. To date, more than 80% of captured ticks were extracted from tortoises inhabiting areas with shrub cover and very few ticks were extrated from tortoises in grasslands and nates in oak canopy. Additionally, we have found that all stages of A. tuberculatum feed on the reptile and found laves questing around shrub and grassland areas. In the future, we plan to screen the ticks for specific pathogens such as Rickettsia and assess the implications of A. tuberculatum.

INTRODUCTION

- Ticks are primarily known as obligate parasites on vertebrate hosts, which suggests their distribution is restricted by the habitat requirement of their host.
- The gopher tortoise tick (A. tuberculatum) is most commonly associated with the gopher tortoise, Gopherus polyphemus.
- The gopher tortoise tick is also known as a vector organism which means it can transmit pathogens.
- The gopher tortoise tick, Amblyomma tuberculatum is the largest tick Species in North America.
- Recent studies have found that the gopher tortoise tick has been found on animals other than the gopher tortoise.
- A. tuberculatum has also been found to carry novel spotted fever group Rickettsia.

OBJECTIVE

- To determine the distribution of A. tuberculatum in the Florida Atlantic University Conservation Area
  - Tick survey within vegetation
  - Tick collection from G. polyphemus

FIELD METHODS

Tick surveys within vegetation:
Vegetation stratification within the FAU conservation area and transect line

PRELIMINARY RESULTS

Average number of ticks collected in the FAU conservation area along a 7-month period

DISCUSSION

- All captured ticks in Florida Atlantic University Conservation Area have been identified as Amblyomma tuberculatum through the use of physical characteristics and a pictorial identification key and confirmed through Secondary identification by Jessica L. McGuire.
- Our preliminary survey from August to September of 2012 suggest that G. polyphemus at FAU have a high tick load, suggesting tortoises may be prone to secondary infection, transmission of pathogens and significant blood loss.
- On average, we found, ~30 ticks per tortoise which is a considerably high tick load (McGuire, 2012, personal comm.), suggesting they are in the high-risk category for a tickborne pathogen.
- We have also found laves on vegetation as well as tortoises during the beginning of December, and throughout January and February.
- During tick drops, we have found that only laves and nymphs were found in vegetation and only adults were found on gopher tortoises.

CONCLUSION

- There is a very high tick burden on gopher tortoise in the FAU conservation area.
- The gopher tortoise tick is very active during the month of August.
- A. tuberculatum, in the FAU Conservation Area, prefers scrub vegetation.

FUTURE WORK

- Screen ticks collected throughout the FAU conservation Area for Rickettsia, Haemogregarines, Babesia, Mycoplasma
- Sample other sites such as Jonathan Dickinson State Park, Blazing Star Nature Area, and Rosemary Conservation Area.

REFERENCES


ACKNOWLEDGEMENTS

This study was conducted under permit ID: FAUS-11-013445 and supported by the National Science Foundation Undergraduate Research and Mentoring Program. The authors wish to thank the FAU Conservation Area for their support and assistance in this project. The authors also wish to thank the Florida Atlantic University for providing the grid points for the FAU Conservation Area.