

Tick Abundance in Fragmented Habitats

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Background Information

- Vectors for Lyme disease
- Most commonly reported vector borne disease (CDC, 2015)
- Around 300,000 people get Lyme disease each year in the United States (CDC, 2015)



Background Information

- Ticks are arachnids
- Deer tick (*Ixodes scapularis*), Lone Star tick (*Amblyomma americanum*), American Dog tick (*Dermacentor variabilis*)
- Humid habitats with cover from the sun
- Spiders, ants, opossums
- Forest fragmentation divides habitats

Hypothesis

- Ticks will be more abundant in the forest habitat than the meadow habitat

Habitats

Meadow

- Underneath powerlines
- Grassy
- No canopy cover
- Vegetation cover



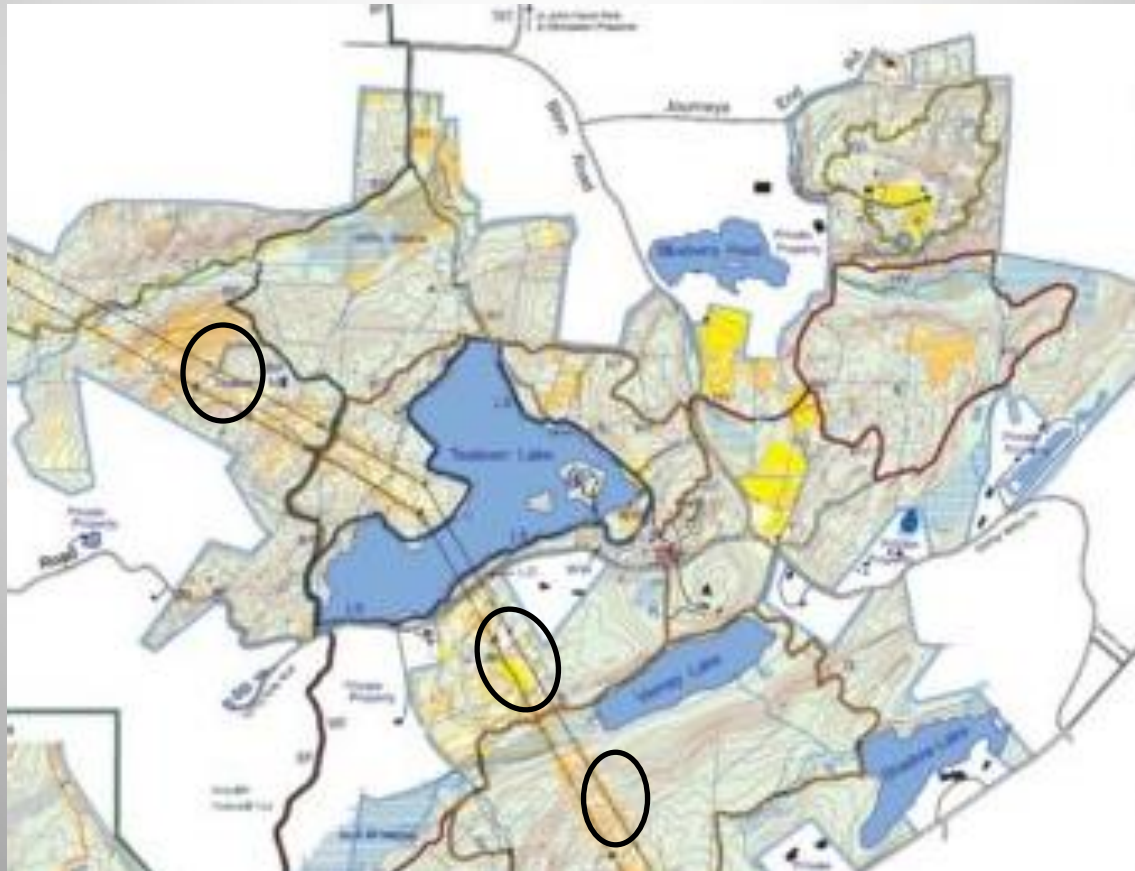
Forest

- Adjacent to powerlines
- Tall trees
- Canopy cover
- Some vegetation cover



Methods

- 3 sites identified
- 6 transects for each site: 3 forested, 3 meadow
- Sheet dragging along each transect



Methods

- Dragged a 1m x 1m white corduroy cloth for 10m while walking at the same pace for each transect



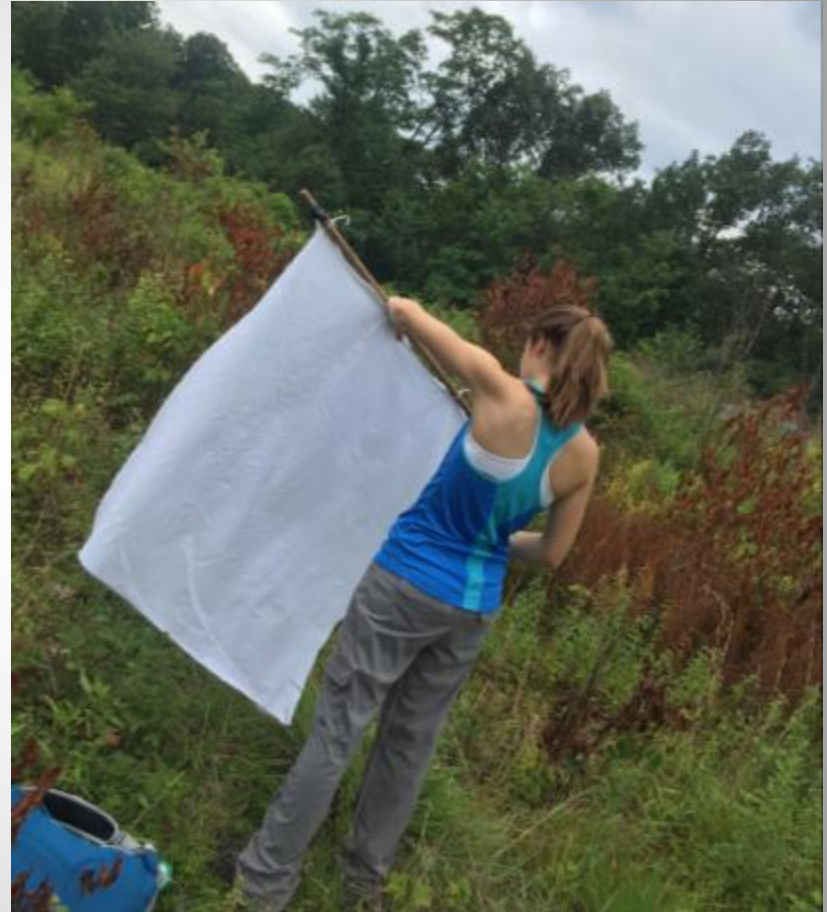
Methods

- Used a lint roller to take ticks off sheet
- Counted ticks on lint roller and recorded on data sheet



Methods

- Quadrats were used to measure vegetation cover
- Densiometer was used to measure canopy cover
- Three samples of vegetation and canopy cover at each transect



Methods

Densiometer



<http://stuartmarsden.blogspot.com/2014/12/>

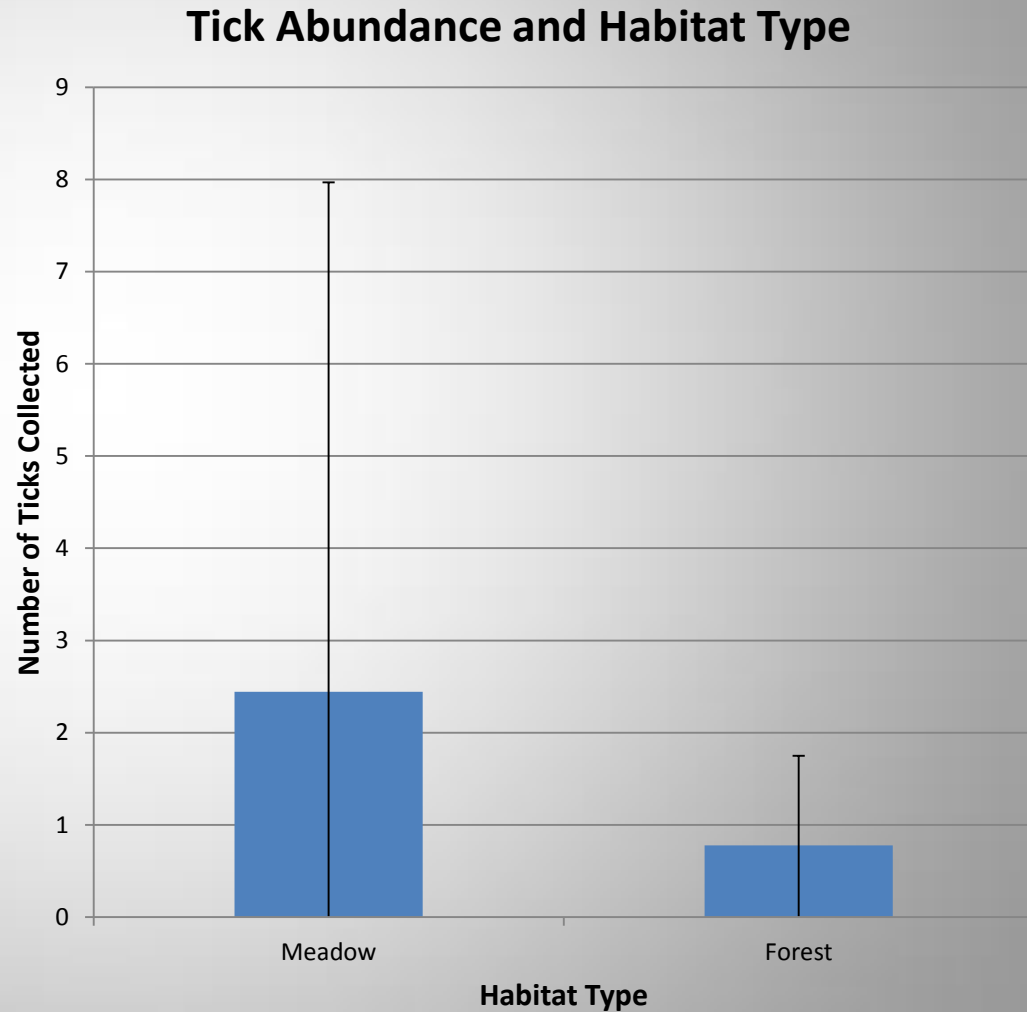
Quadrats



<http://www.ea-cei.org.uk/quantifying-qualitative-contents-of-quadrats-with-a-metal-detector-by-grace-lawrie/>

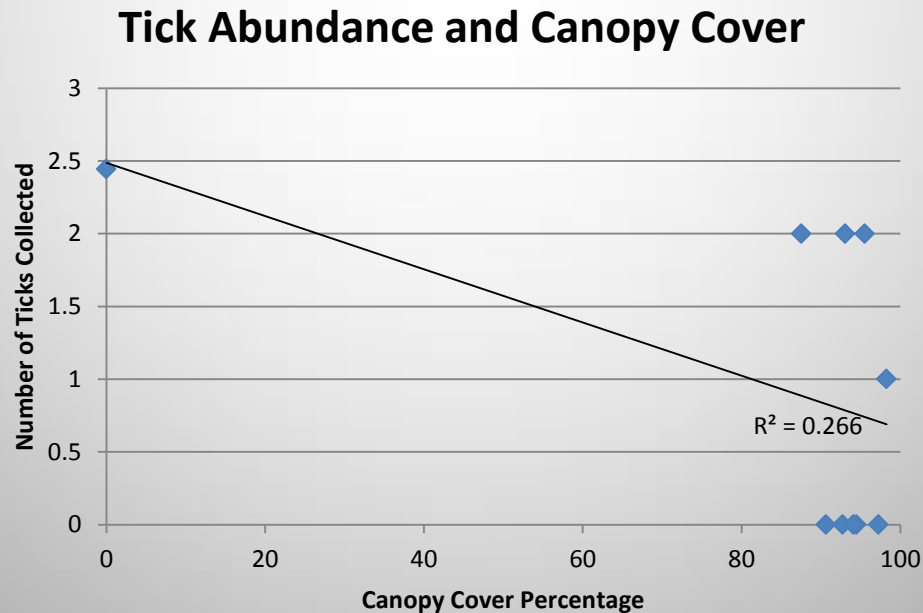
Results

- Habitat Type
- More ticks found in meadow than in forest
- Standard deviation bars



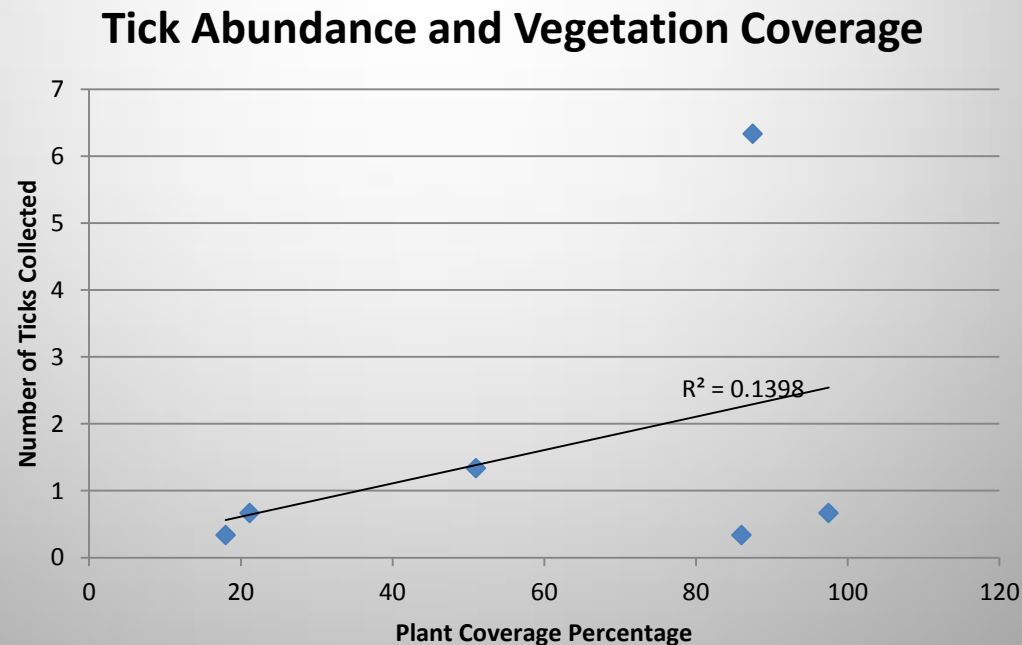
Results

- Canopy Cover
- No relationship between tick abundance and canopy cover
- R^2 value is 0.266



Results

- Vegetation cover
- No relationship between tick abundance and plant coverage
- R^2 value is 0.1398



Discussion/Conclusion

- No strong relationships with tick abundance
- Deer and mice abundance
- 17 ticks in one transect
 - Why?

Discussion/Conclusion

- Future research
 - What factors have a strong relationship with tick abundance?
 - Test more sites for a larger sample size and more accurate results
- Problems Encountered
 - It rained the night before I tested my first site which might have affected my results

Discussion/ Conclusion

- Important because ticks are vectors for Lyme disease
- If a relationship was shown then we could avoid certain areas with high tick abundance

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