

# The effects of timber harvesting on small mammal abundance, tick burden, and foraging behavior with implications for tick densities

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## ACKNOWLEDGEMENTS

I would like to thank Dr. Allison Gardner and all members of the Gardner Lab for their help and support, including the invaluable Alyssa Marini and my exceptional technicians, Rose Crispin, Jocelyn Ferraro, Danielle Donadio, and Braedon Stevens. I would also like to thank the landowners and foresters in southern Maine for granting me access to their land and providing me with land management histories. I am also grateful for my sources of funding from USDA-NIFA award #ME012450318 and Hatch award #ME021905.

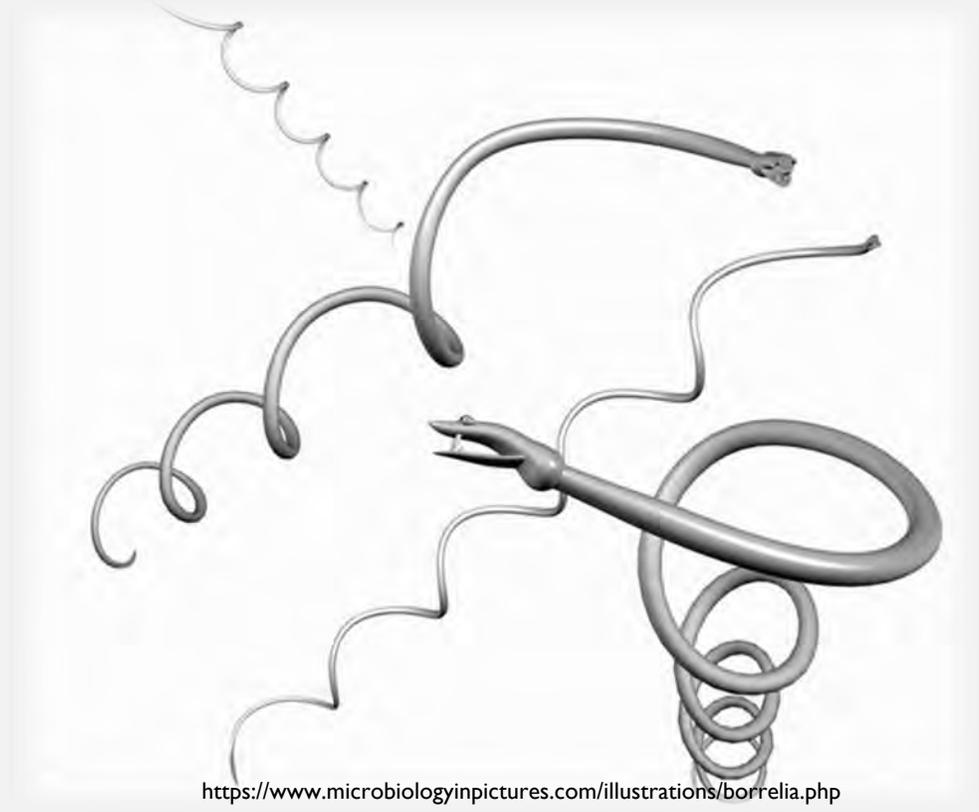


# BACKGROUND



<http://bio.pisceswebdesign.com/species/ixodes-scapularis>

*Ixodes scapularis*

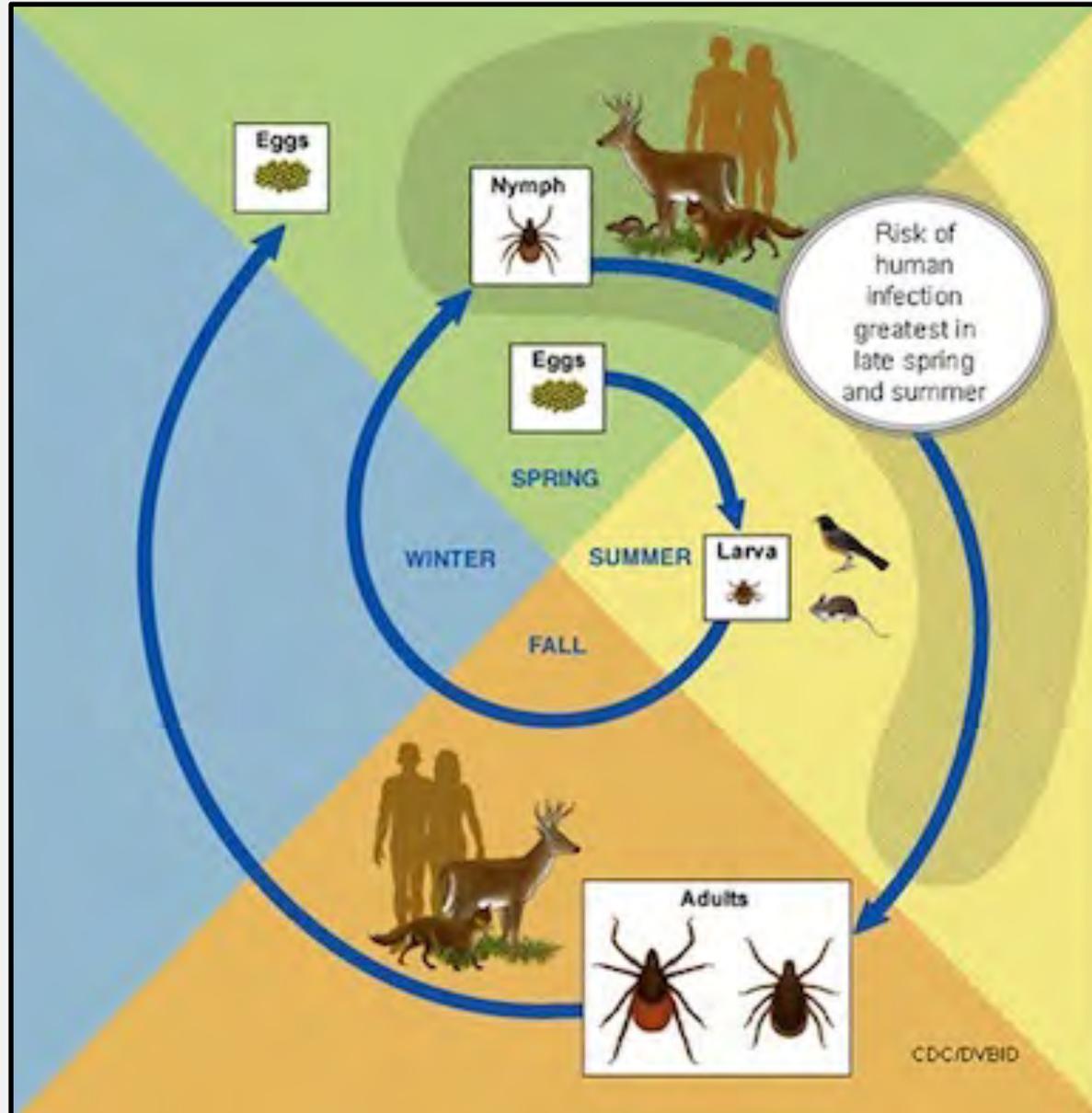


<https://www.microbiologyinpictures.com/illustrations/borrelia.php>

*Borrelia burgdorferi*

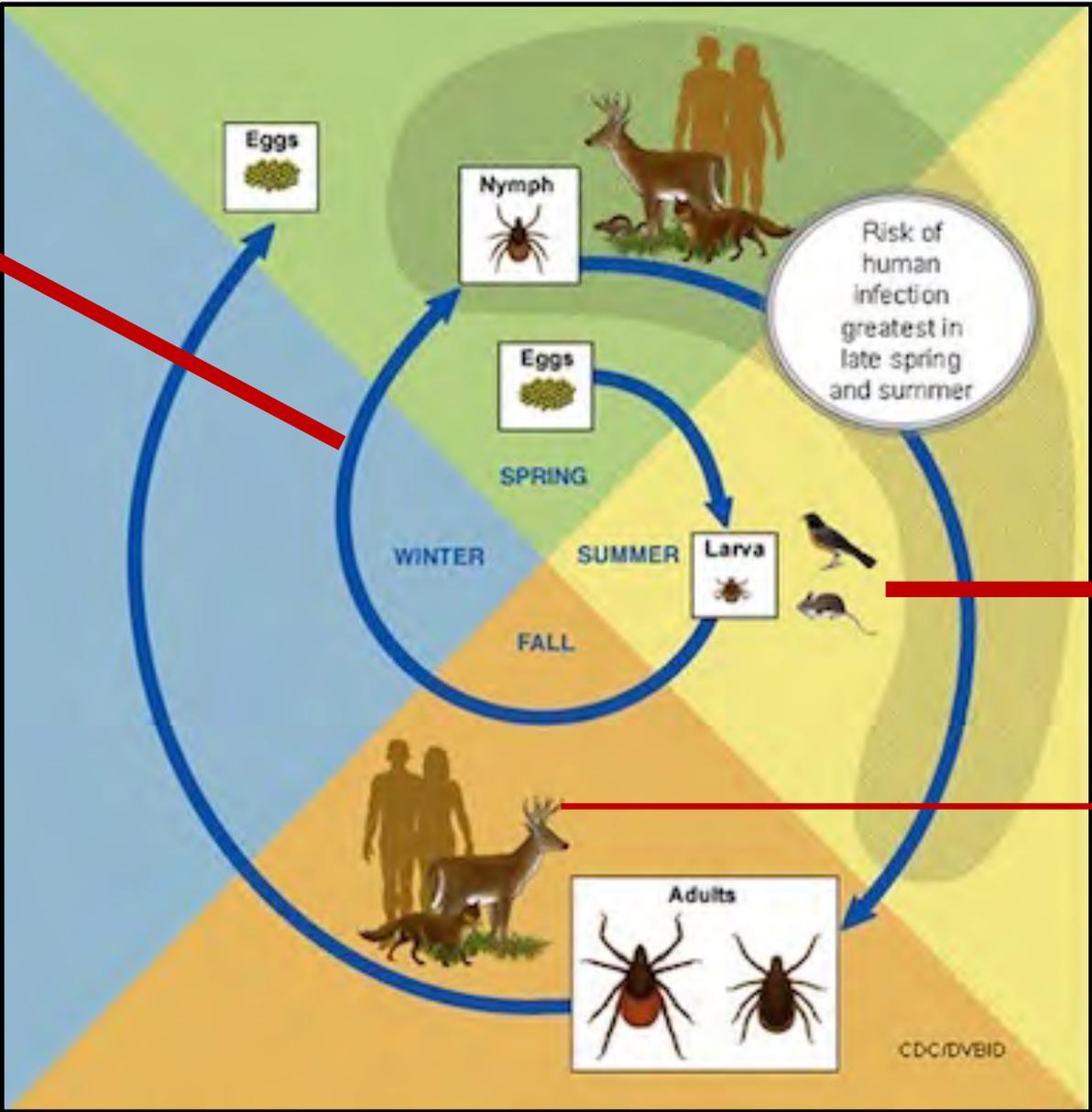
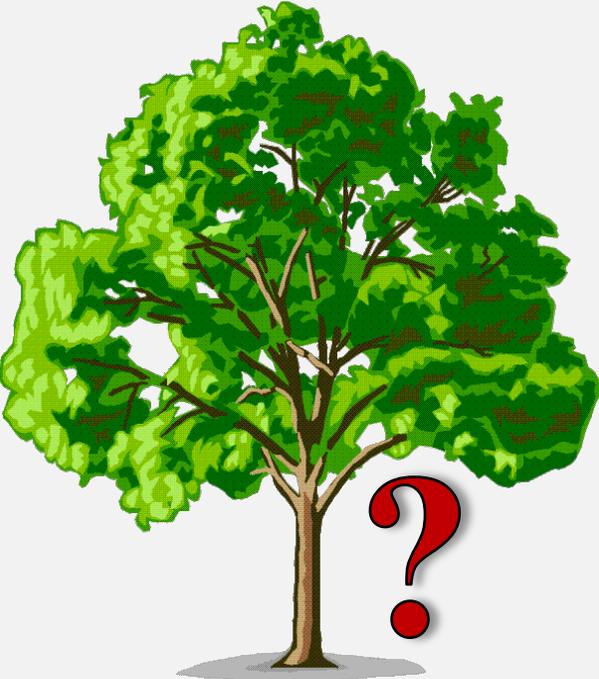
Most commonly occurring vector-borne disease: 30,000 cases/year<sup>1</sup>

<sup>1</sup>“Data and Surveillance | Lyme Disease | CDC.” *Centers for Disease Control and Prevention*, 2022



Survival in leaf litter

- Temperature
- Moisture



Host activity



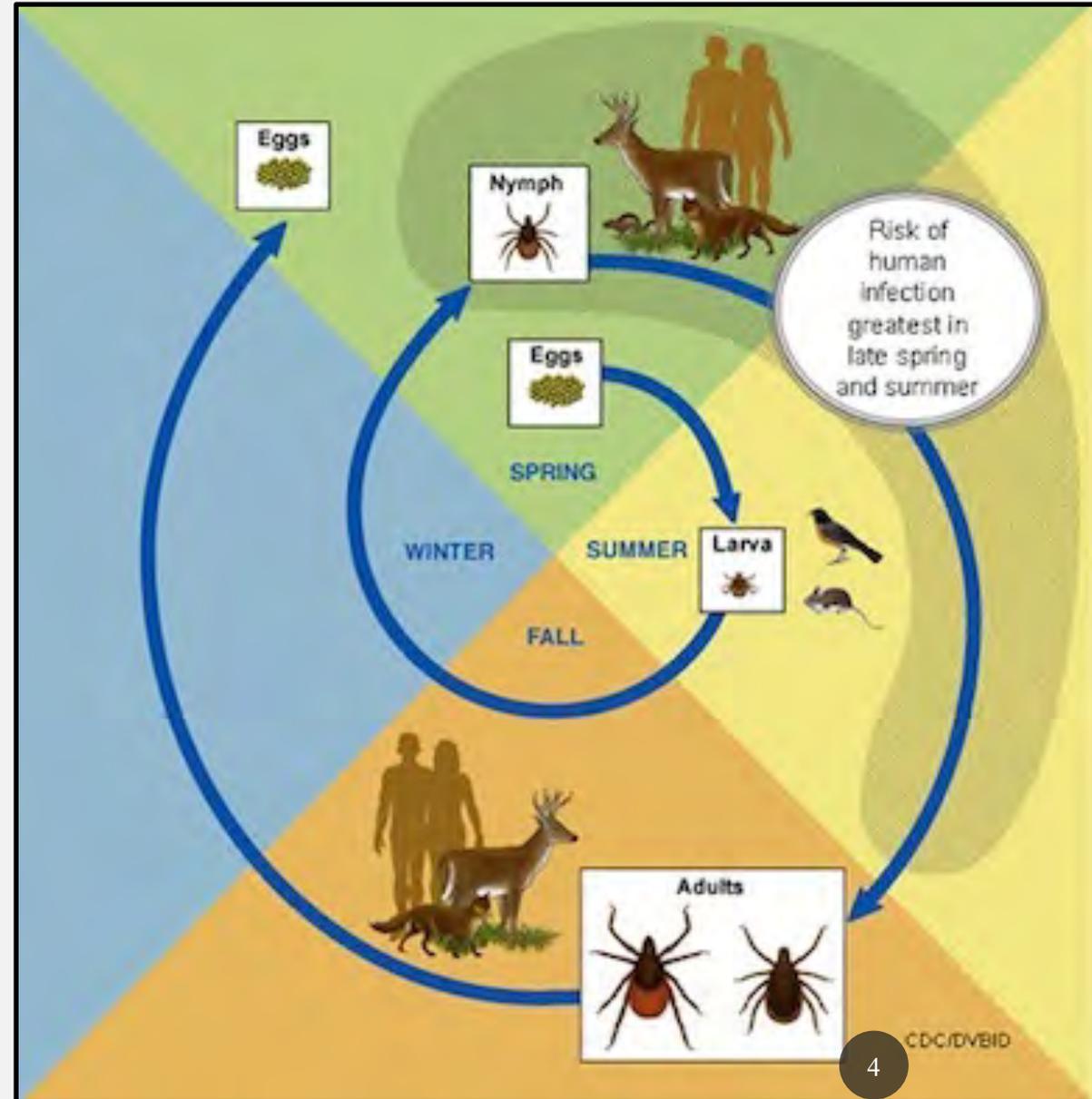
Prescribed burns



Removal of invasive plants



Active Forest Management



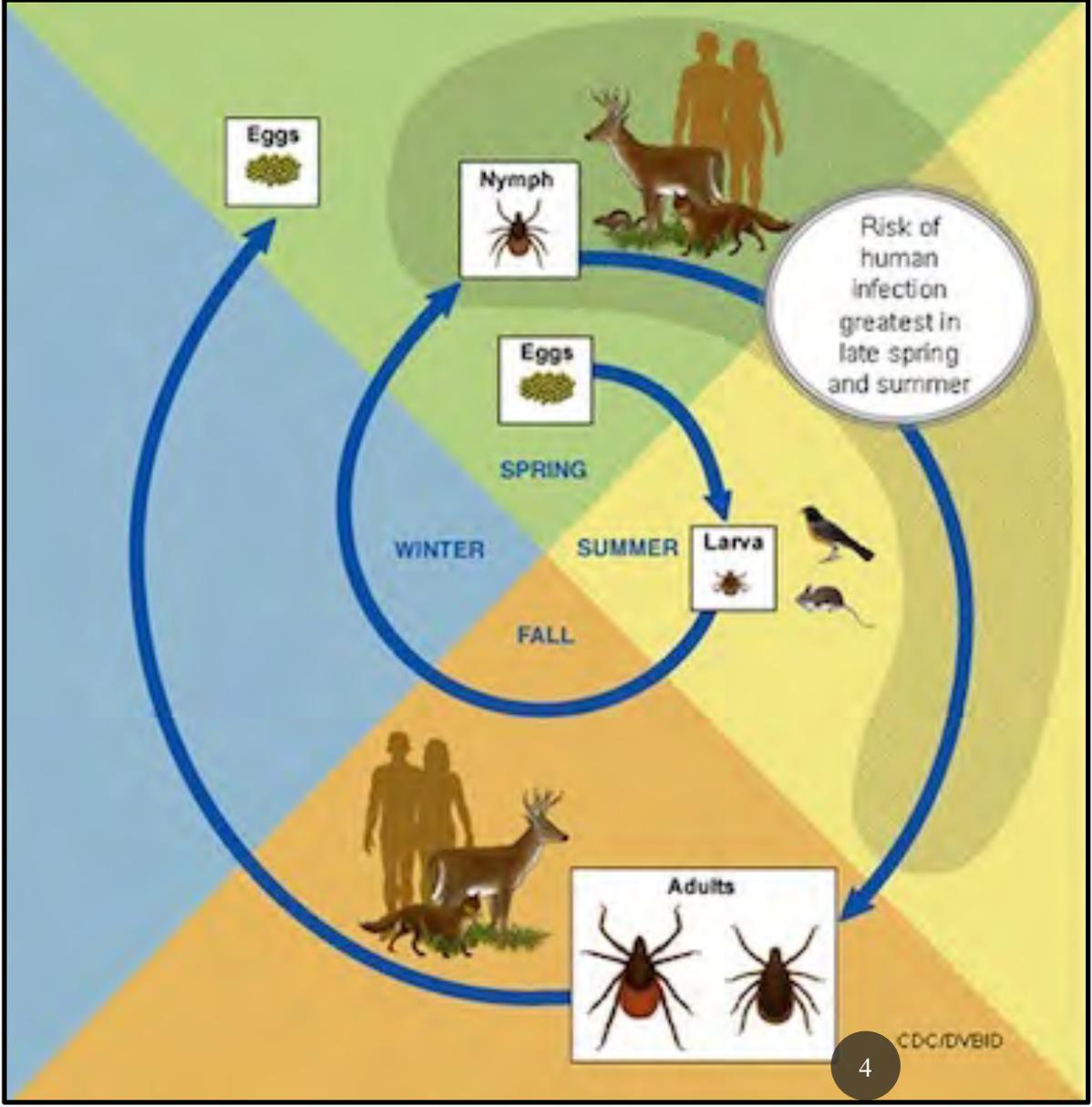
 Prescribed burns

 Removal of invasive plants



Active Forest Management

Timber Harvesting  
*Forest Structure*



# TIMBER HARVESTING



## TIMBER HARVESTING



## SMALL MAMMALS



## TIMBER HARVESTING



## SMALL MAMMALS



TIMBER  
HARVESTING



SMALL MAMMALS



# TIMBER HARVESTING



# SMALL MAMMALS



TIMBER  
HARVESTING



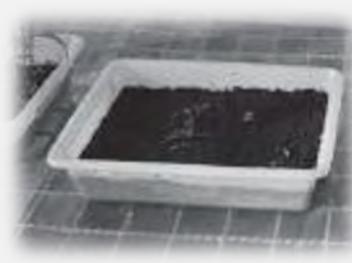
SMALL MAMMALS



# TIMBER HARVESTING



# SMALL MAMMALS



## TIMBER HARVESTING



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# TIMBER HARVESTING



# SMALL MAMMALS



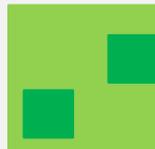
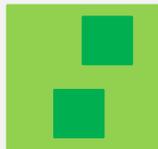
## TIMBER HARVESTING



## SMALL MAMMALS

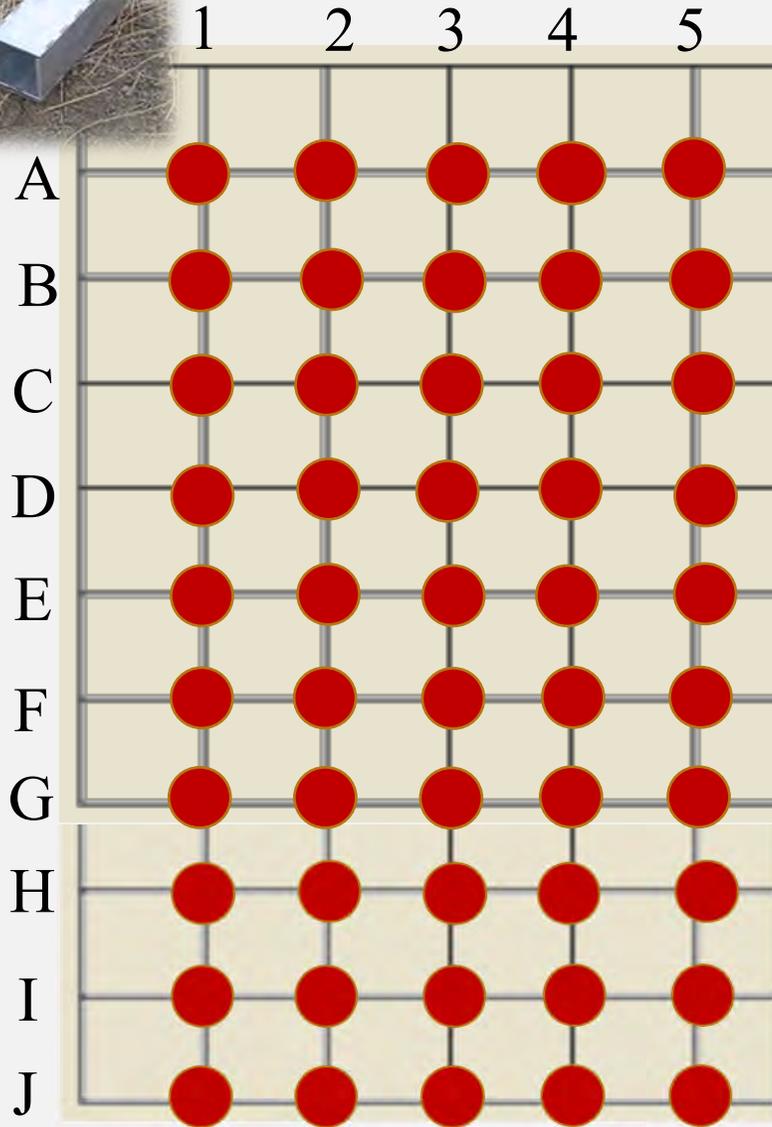


## OBJECTIVES



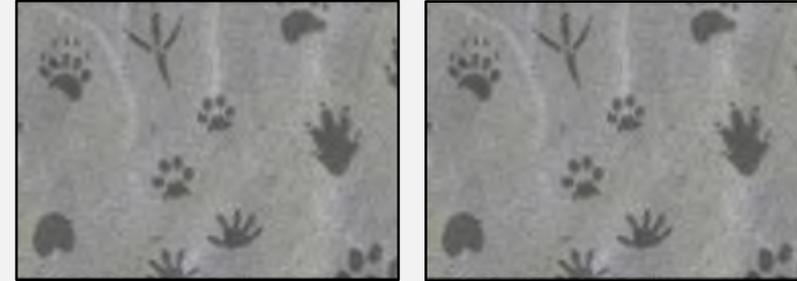
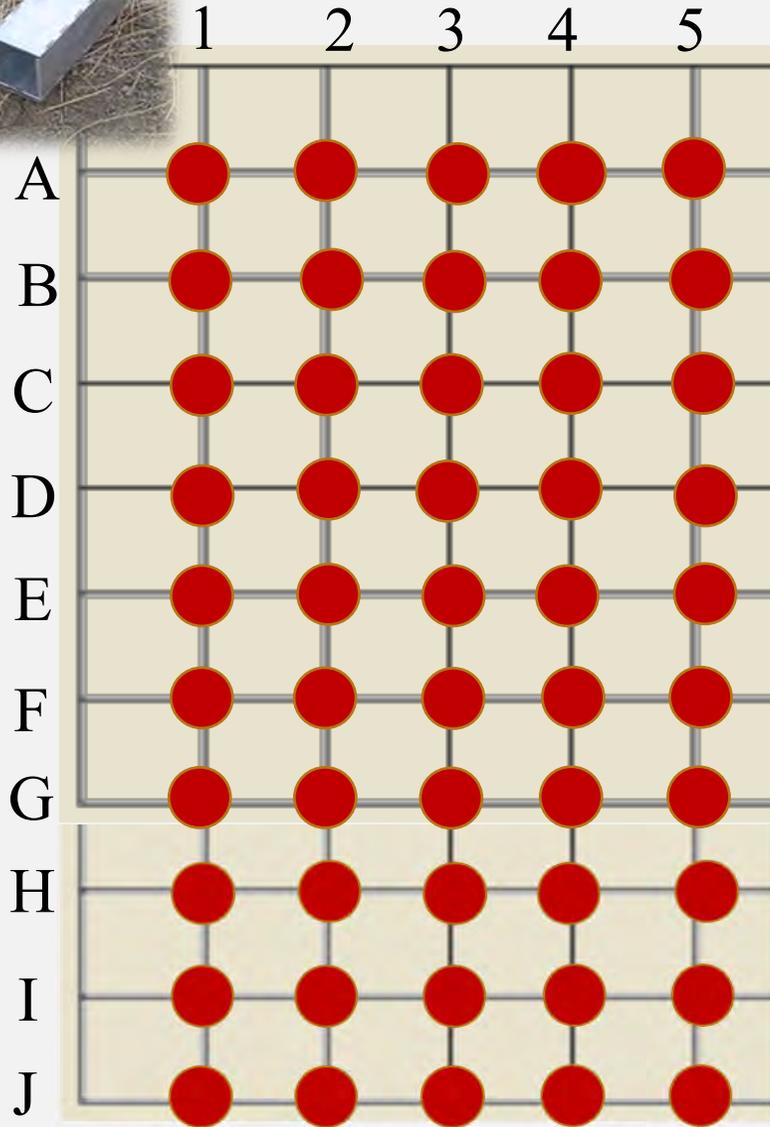
1. Determine how timber harvesting affects small mammal population sizes and foraging, and the consequences for tick burdens and infection prevalence.
2. Compare three methods of small mammal sampling (live trapping, track plates, and foraging trays) to determine their ability to predict tick burdens and infection prevalence.

# DATA COLLECTION



50 Sherman traps per property, 3 consecutive trap nights

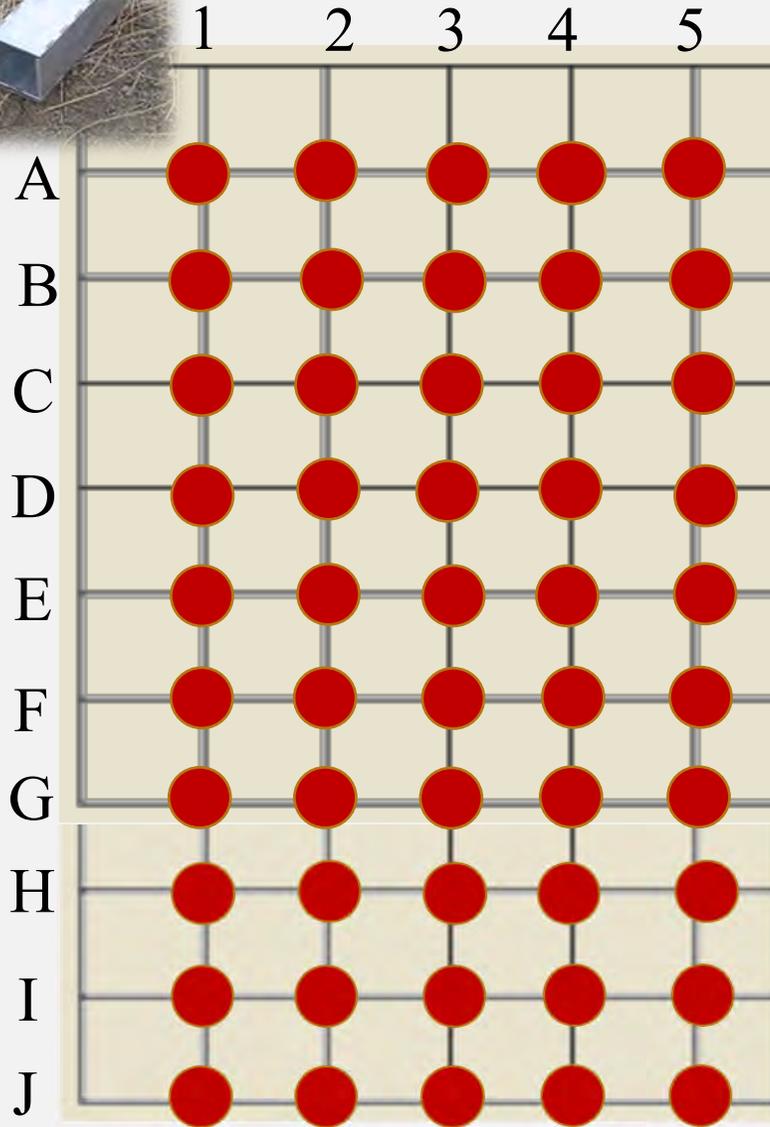
# DATA COLLECTION



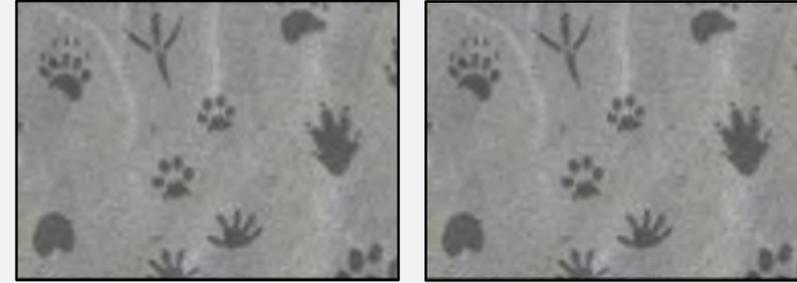
16 track plates per property

50 Sherman traps per property, 3 consecutive trap nights

# DATA COLLECTION



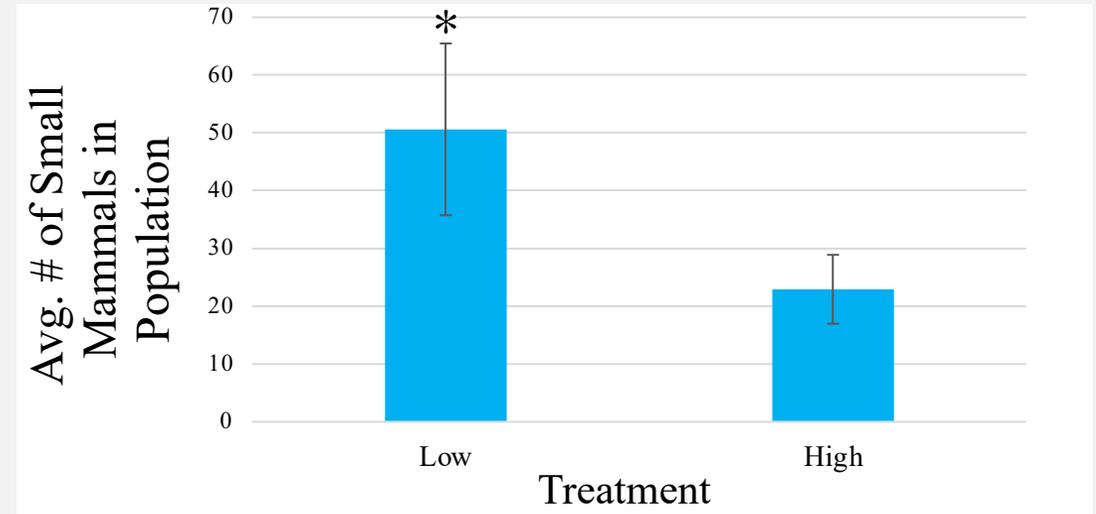
50 Sherman traps per property, 3 consecutive trap nights



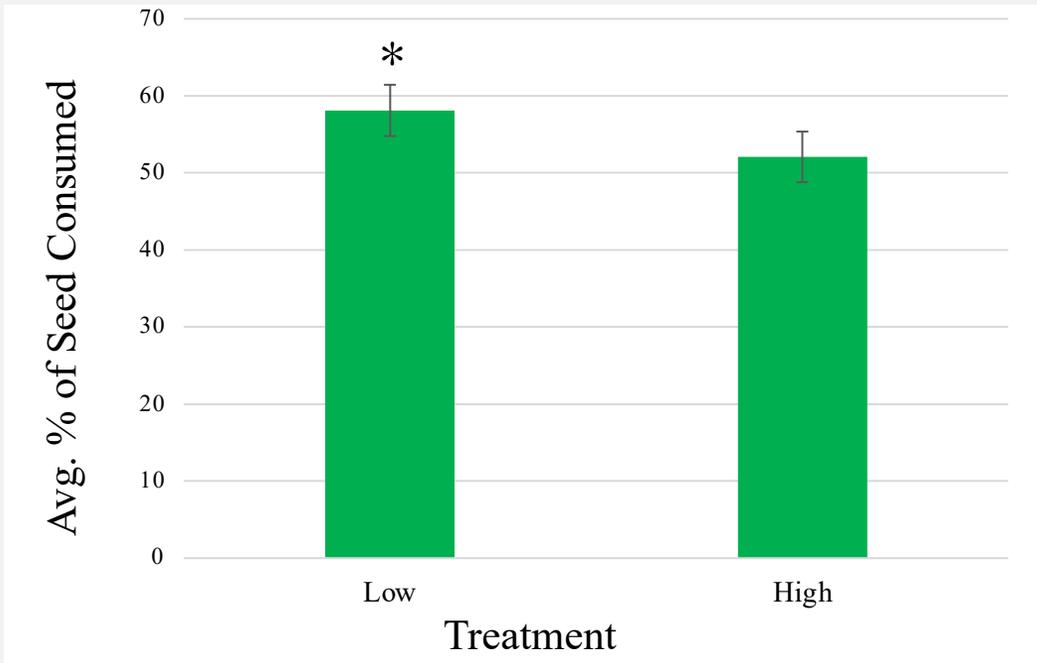
16 track plates per property



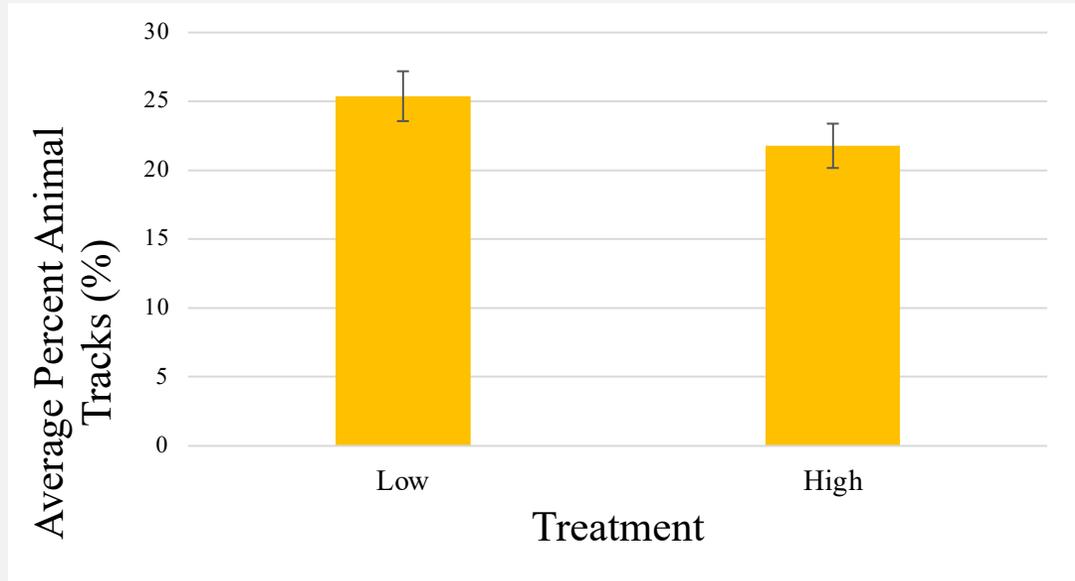
12 foraging trays per property



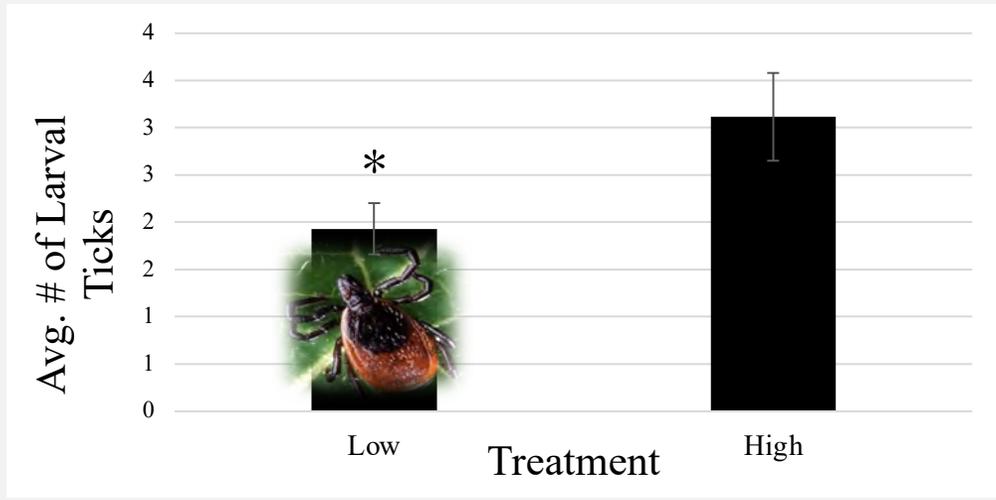
**POPULATION SIZE**



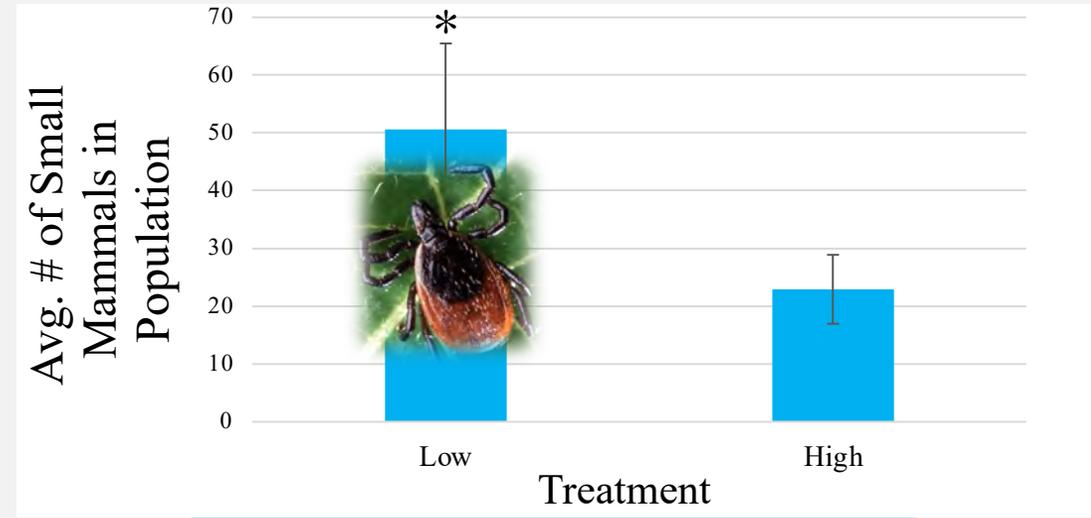
**FORAGING BEHAVIOR**



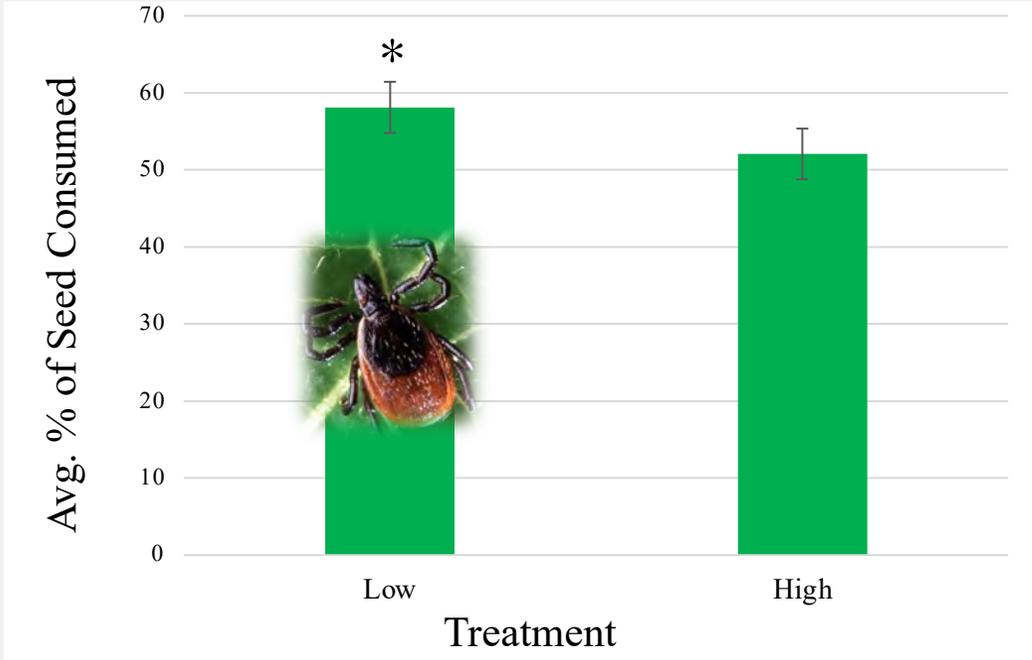
**ACTIVITY**



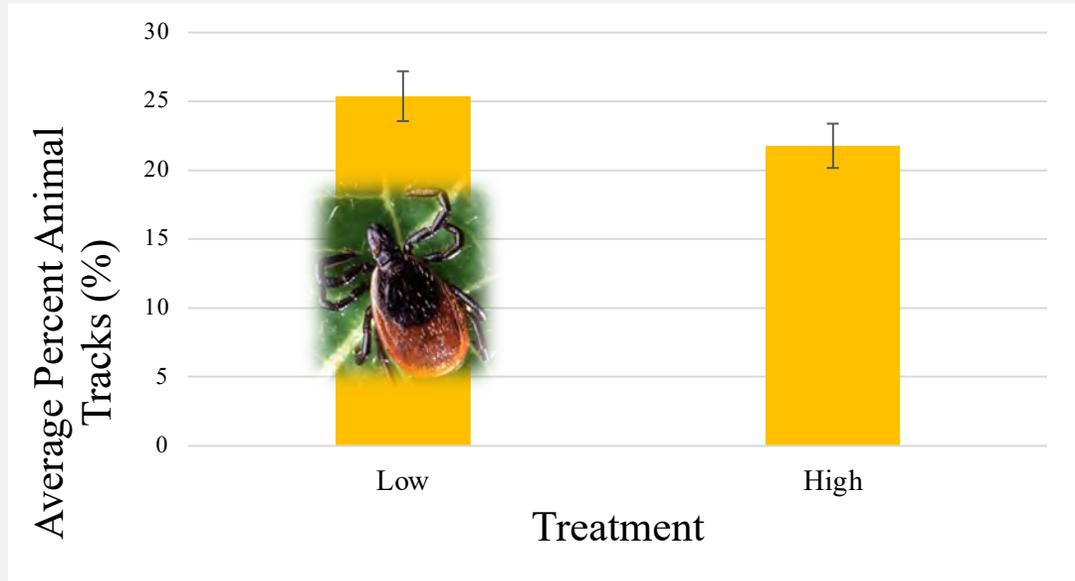
**TICK BURDEN**



**POPULATION SIZE**



**FORAGING BEHAVIOR**



**ACTIVITY**

# CONCLUSION



TIMBER  
HARVESTING



POPULATION SIZE

FORAGING BEHAVIOR

TICK BURDEN

TICK DENSITIES

Timber harvesting may lower tick densities through reductions in small mammal foraging behavior and population size



QUESTIONS?





# Tick Collection

