
EFFECT OF DEER BROWSING ON REGENERATING STUMPS

BY OLIVIA ENG

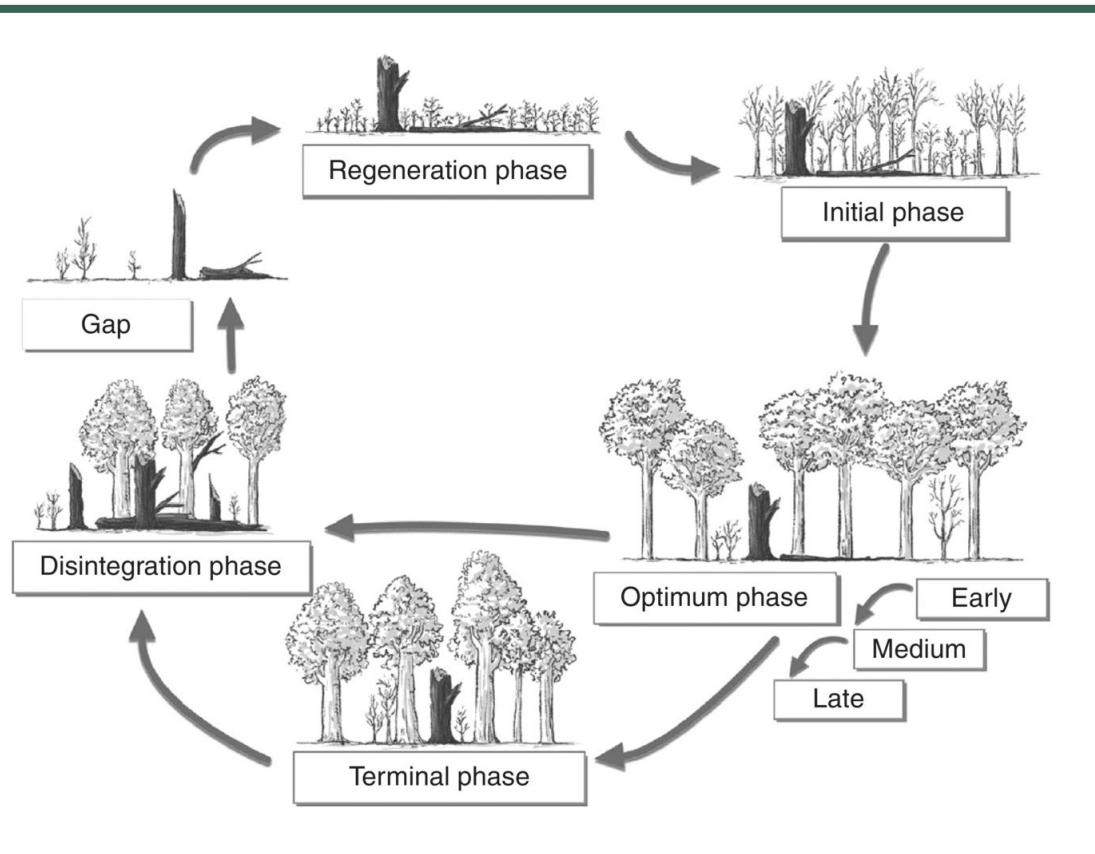
WESTLAKE HIGH SCHOOL, 11TH GRADE

INTRODUCTION

- North American Beaver (*Castor canadensis*)
 - Population increase since the 1930s (Choquette)
 - “Keystone species” responsible for creating vital wetlands (Choquette)
 - Chew down trees, shrubs, and other available vegetation for food and building materials
- White Tailed Deer (*Odocoileus virginianus*)
 - Overpopulation
 - Prefer “edge habitats” (Koryos, 2014)
 - Deer herbivory facilitates invasive species and decreases biodiversity (Koryos, 2014)



INTRODUCTION



- Typical forests blend of young, middle-aged, and old trees
- Increased deer herbivory has led to forests with few young trees
 - Deer herbivory detrimental to tree regeneration and growth
- When beavers chew down trees, there are fewer trees to replenish the forest



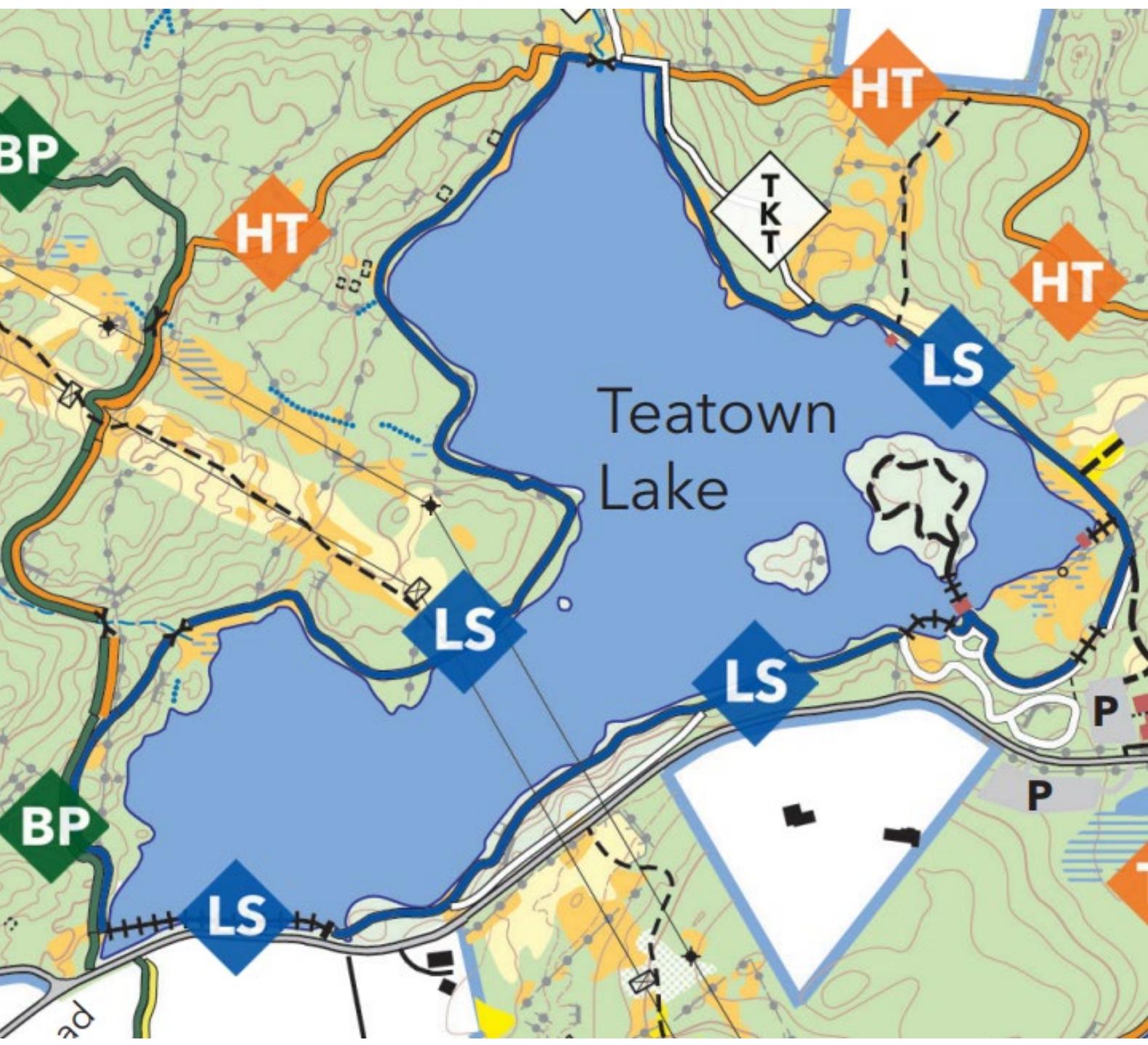
HYPOTHESIS

DEER HERBIVORY WILL BE
DETРИMENTAL TO TREE
REGENERATION FROM BEAVER
STUMPS

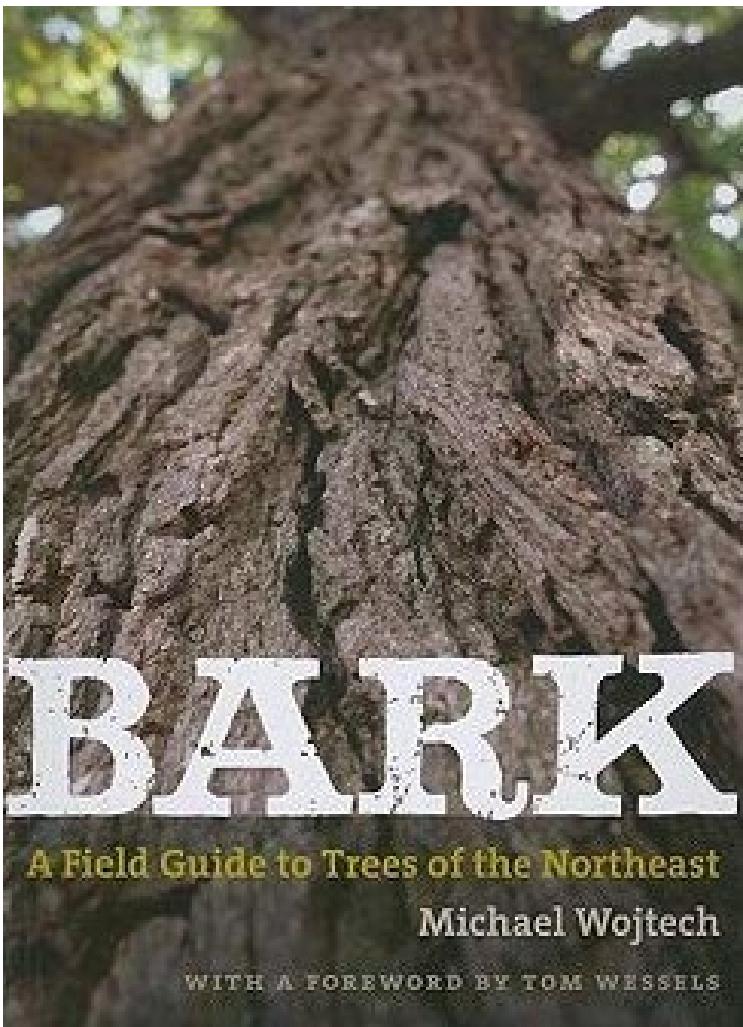


METHODOLOGY

- Conducted research along Teatown Lake using Lakeside Trail



METHODOLOGY



- Identified the species of tree
 - Used dichotomous key specifically designed to identify trees by their bark
- Measured diameter of tree stumps within 10m of the water's edge
 - Excluded stumps with a diameter of 5cm or smaller to account for shrubs

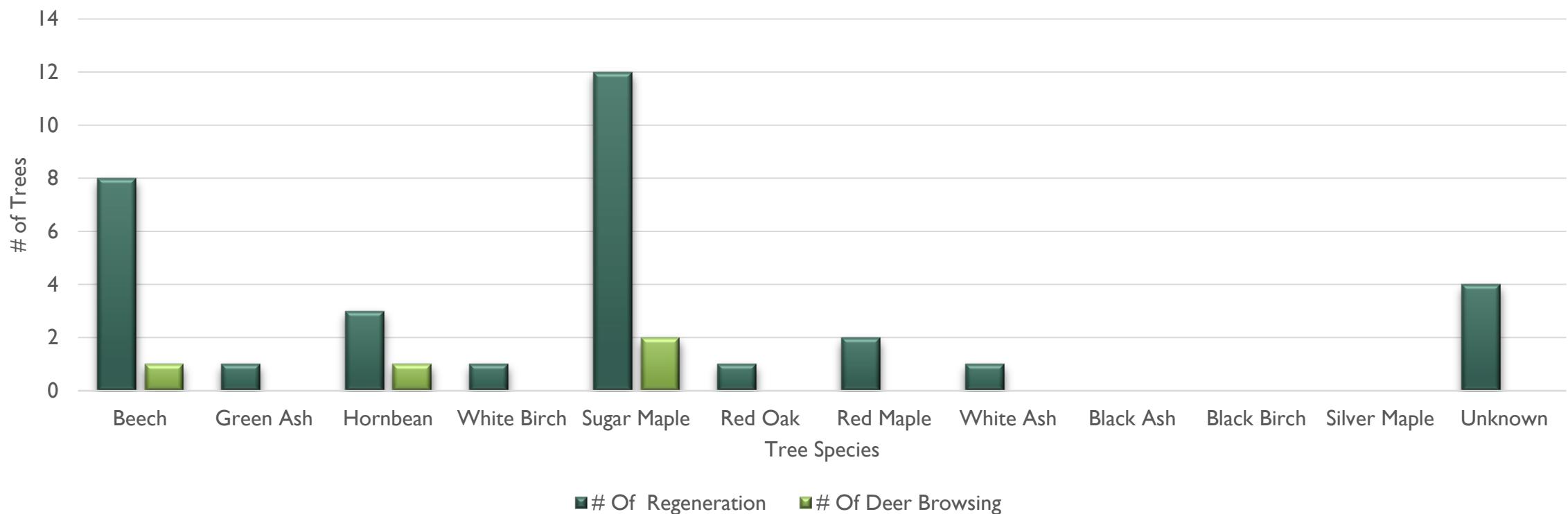
METHODOLOGY



- Recorded if the tree stump is regenerating and if there was evidence of deer herbivory
 - Deer lack upper incisors, so when they bite foliage they create jagged edges

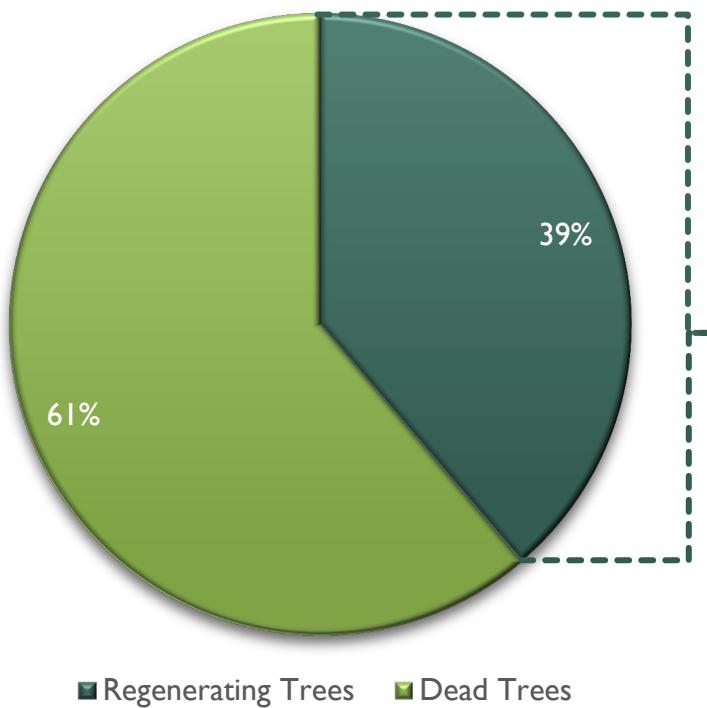
RESULTS

Number of Trees With Regeneration and Deer Browsing Per Species

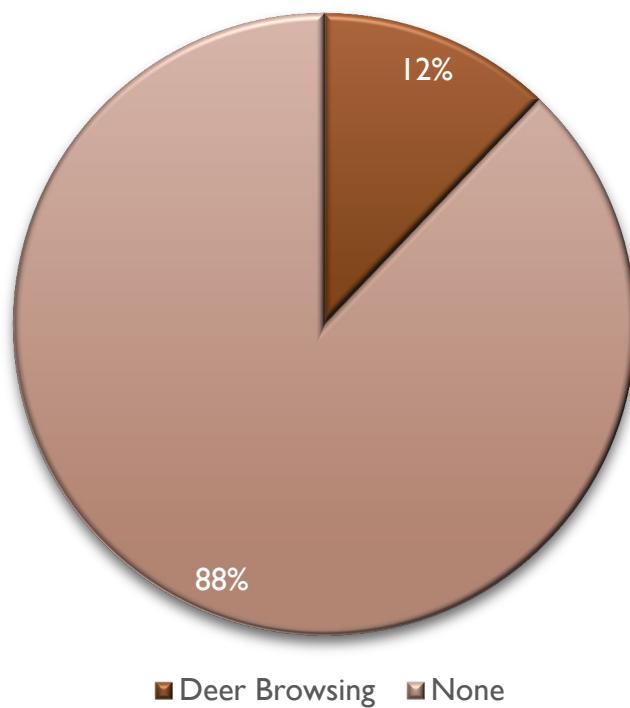


RESULTS

Regenerating Trees vs Dead Trees



Deer Browsing vs None





DISCUSSION

INSUFFICIENT EVIDENCE OF DEER BROWSING

WHY???



TERRAIN

- Deer browsing is more prominent at one section of Lakeside Trail
 - Flat terrain with less thorny shrubs
- Several regenerating stumps hard for deer to access



LIMITATIONS

- Hikers could have potentially scared away some of the white tailed deer
- Human error when it comes to identifying the trees
 - Several stumps had their bark eaten



FUTURE RESEARCH

- Testing specifically how terrain affects deer herbivory
 - Would explain why hypothesis was not supported
 - Method for preventing deer herbivory
- Repeating the experiment with a stream instead of a lake
 - Difference in amount of deer herbivory

CONCLUSION



- Deer overpopulation is already an existing issue
- With recent comeback of beavers, people have to consider the implications of both animals in tandem on the environment
- Although 50% of North America's threatened or endangered species rely on beaver wetlands, many people view beavers as nuisances
 - Dams flooding residential areas
 - People want a justifiable reason to get rid of the beavers

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