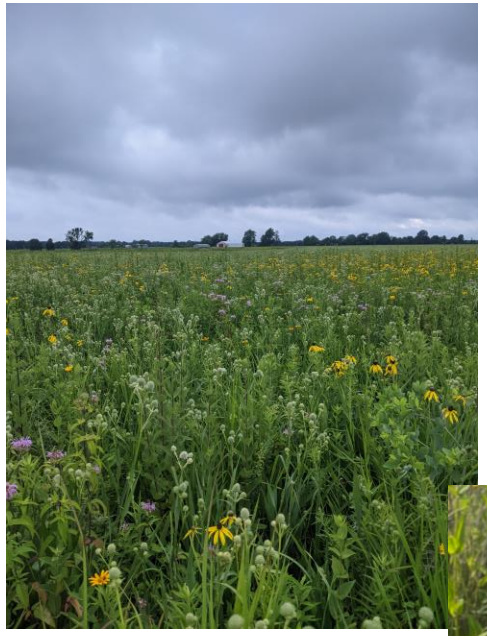
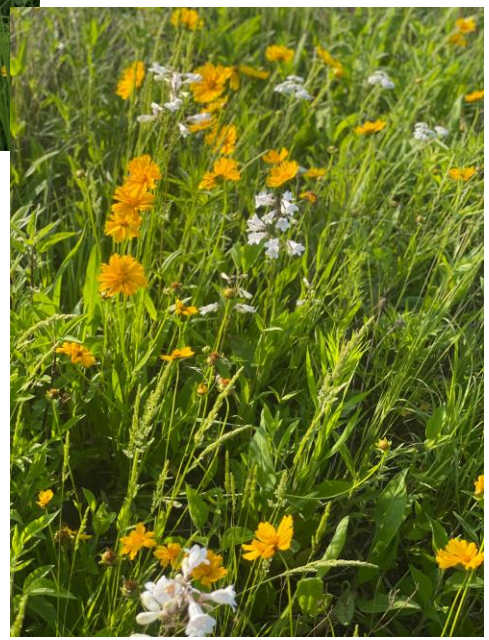
# Prairie Management and Its Effects On Small Mammals

By Chantelle Wimms and Dr. Samniqueka Halsey

# Introduction to Project



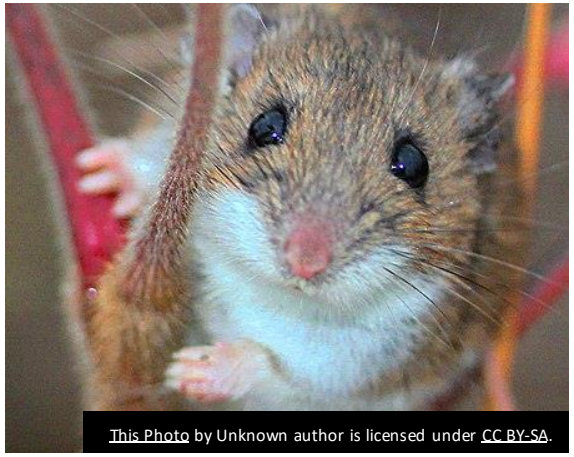


# Background

- Grasslands are one of the most endangered types of habitats in North America
- There is an ongoing effort to search for the best strategy to restore and manage prairies
- Burning and mowing are most common but there are disagreements of how to implement these strategies

Glass and Eichholz 2021, Matlack et al 2008, Richardson 2010






# Objectives

- Investigate the effects of prairie management on small mammal abundance and richness
- Determine whether the time since restoration affects body mass of small mammals

# Methods and Analysis

# Data Collection

- At Prairie Fork and Tucker Prairie
- Capture and Release live trapping
- Trapped mammals:
  - Tagged with unique identification on ear
  - Length, weight, sex, and species collected
  - Tissue sample and ticks

# Data Analysis

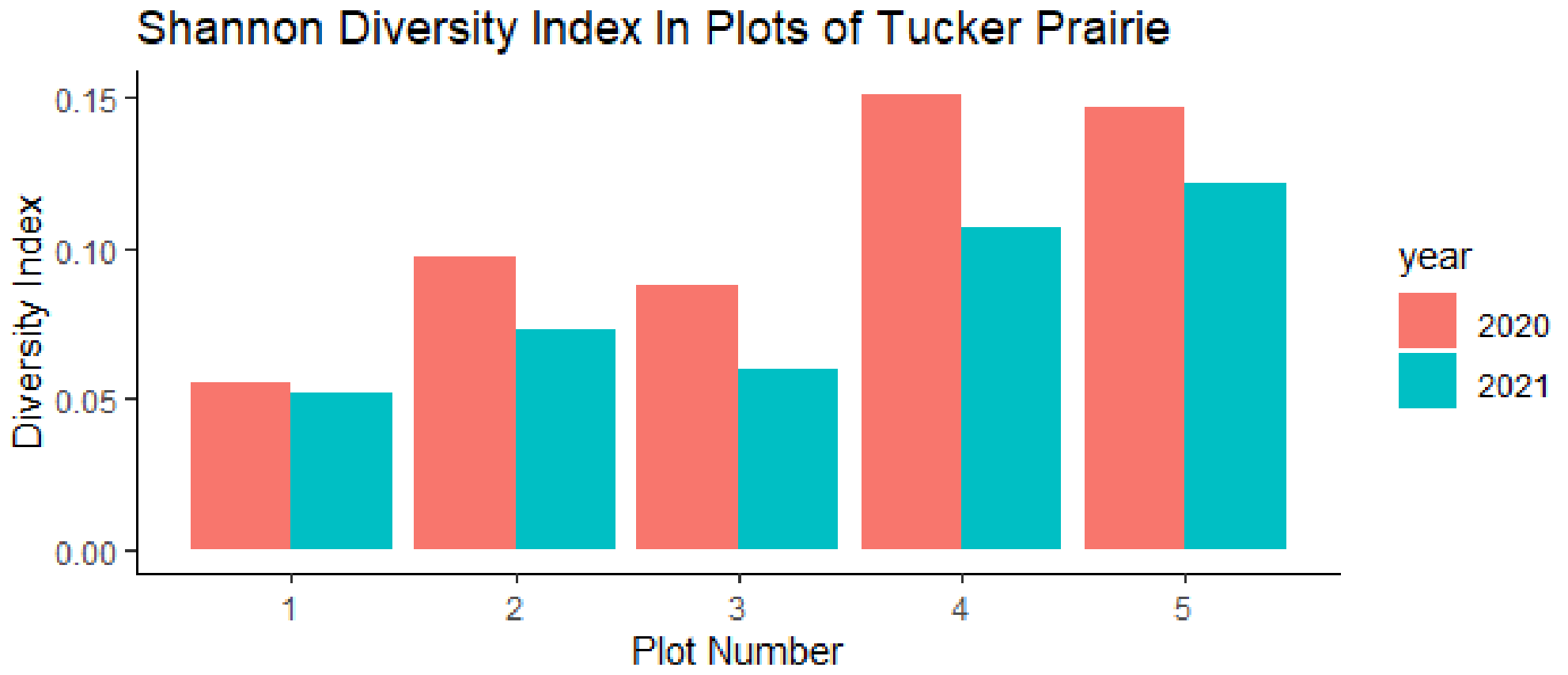
Species Richness

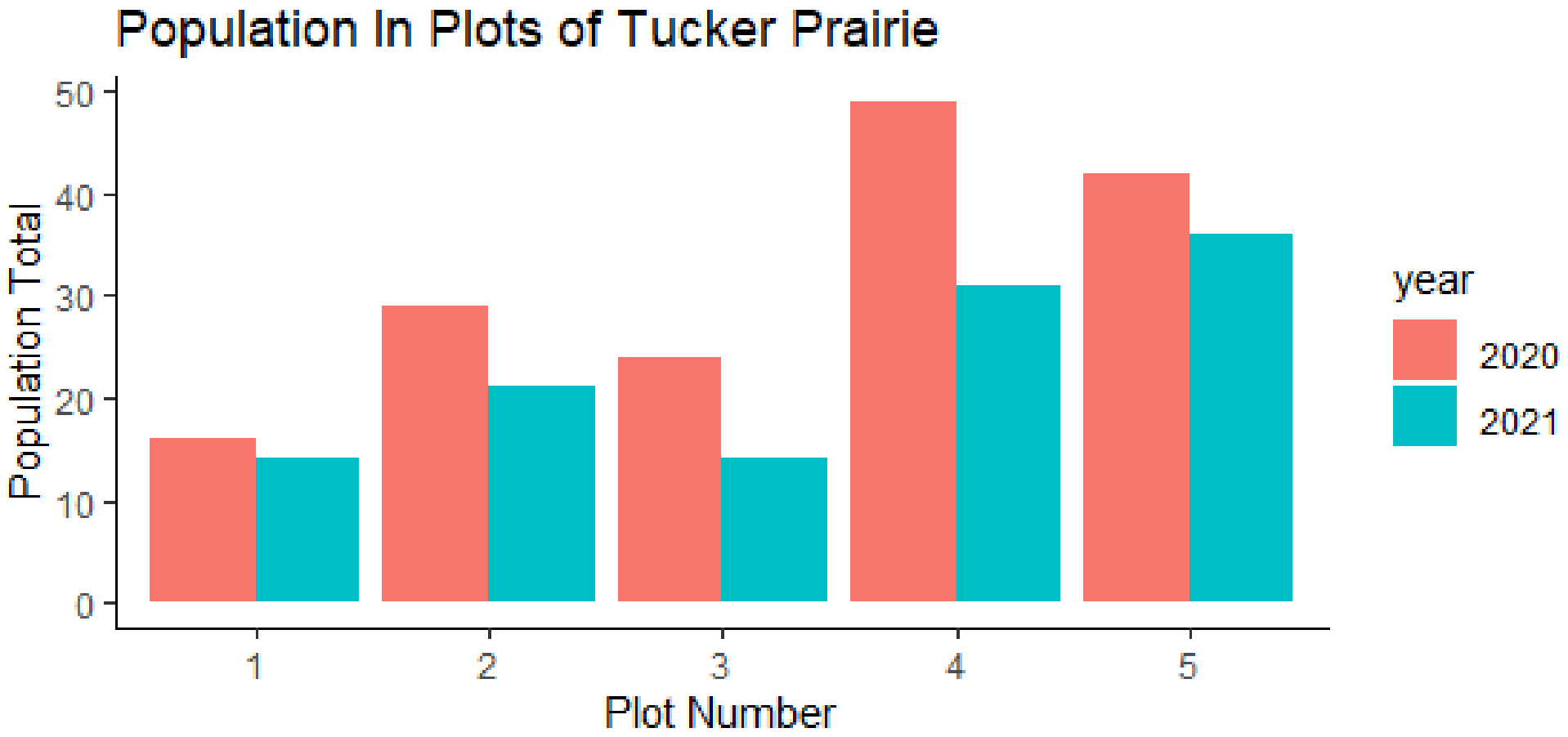
- Shannon-Wiener Diversity Index

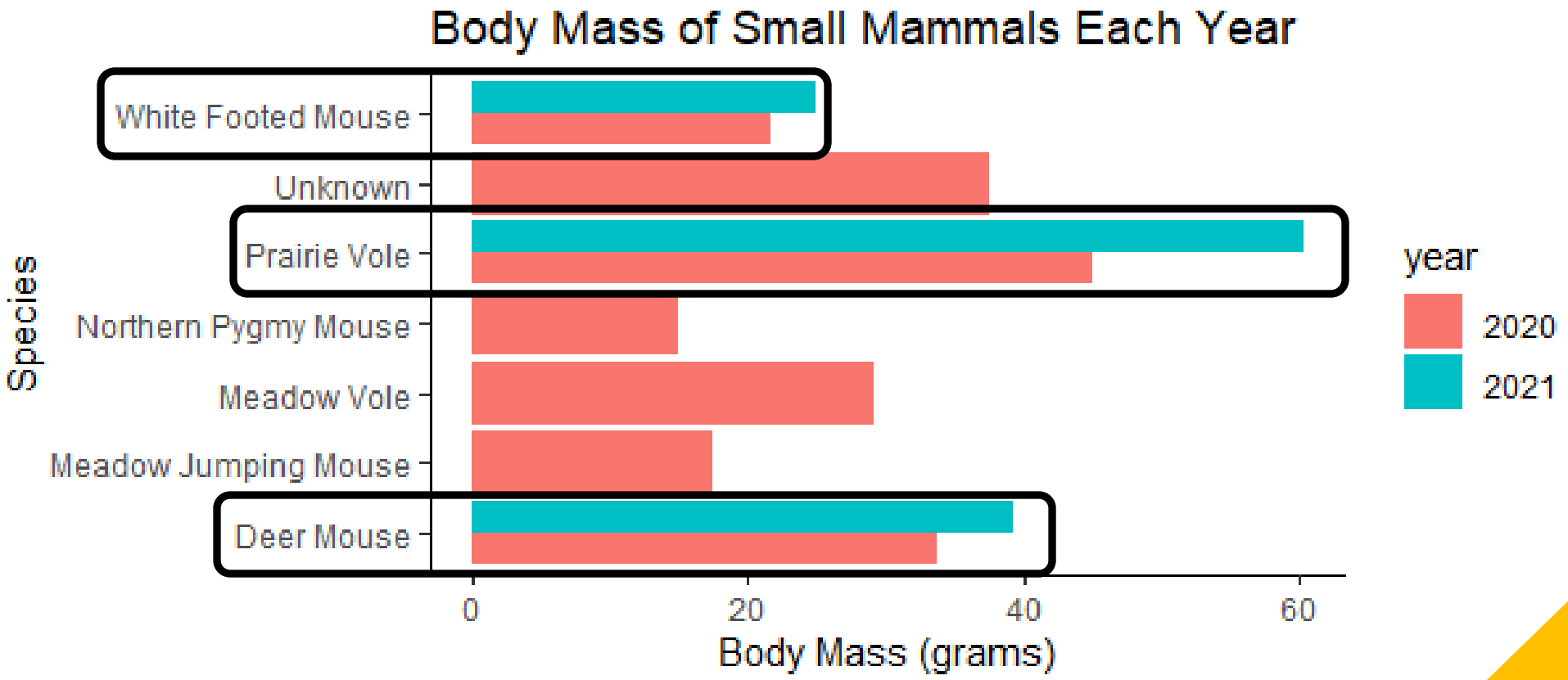
Comparison

- Kruskal-Wallis Test
- Two-Way Analysis of Variance (ANOVA)

# Results


Shannon Diversity Index In Plots of Tucker Prairie
Diversity Index
0.15
0.10
0.05
0.00
1
2
3
4
5
Plot Number
year
2020
2021


Population In Plots of Tucker Prairie
Population Total
50
40
30
20
10
0
1
2
3
4
5
Plot Number
year
2020
2021


Body Mass of Small Mammals Each Year
White Footed Mouse
Unknown
Prairie Vole
Northern Pygmy Mouse
Meadow Vole
Meadow Jumping Mouse
Deer Mouse
Species
0
20
40
60
Body Mass (grams)
year
2020
2021

# Conclusion

Tucker Prairie

- Plots 4 and 5 had highest species richness and abundance
- 2020 had higher species richness and abundance

Body mass

- Differences between year and species were significant
- Differences between site was not significant

# Future Research

- Focus on survivorship of small mammals
- Ranking variables that are most likely to affect survivorship
  - Climate
  - Parasitism
  - Vegetation, etc…

# References


1. Glass, Alex, and Michael W Eichholz. 2021. “Habitat Associations of Small Mammal Communities in a Restored Prairie System in Southern Illinois.” Edited by Leslie Carraway. *Journal of Mammalogy*, March, gyab002.
2. Matlack, Raymond S., Donald W. Kaufman, and Glennis A. Kaufman. 2008. “Influence of Woody Vegetation on Small Mammals in Tallgrass Prairie.” *The American Midland Naturalist* 160 (1): 7–19.
3. Richardson, Matthew L. 2010. “Effects of Grassland Succession on Communities of Small Mammals in Illinois, USA.” *Biologia* 65 (2): 344–48.




# Acknowledgements

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# Thank You


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