DIVERSITY AND COMMUNITY STRUCTURE OF NOCTURNAL TERRESTRIAL ORGANISMS IN FOREST AND GRASSLAND HABITATS OF LONGWOOD LANCER PARK

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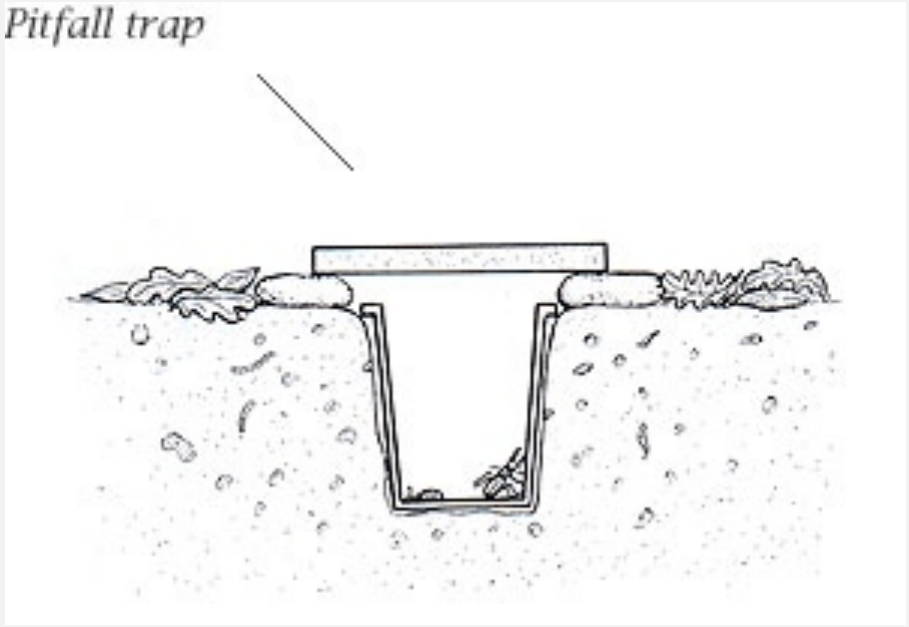
WHAT IS A TERRESTRIAL ORGANISM?

- Terrestrial organisms are organisms that live primarily on land.
- Vascular plants, arthropods, and higher vertebrates have adapted to terrestrial environments.



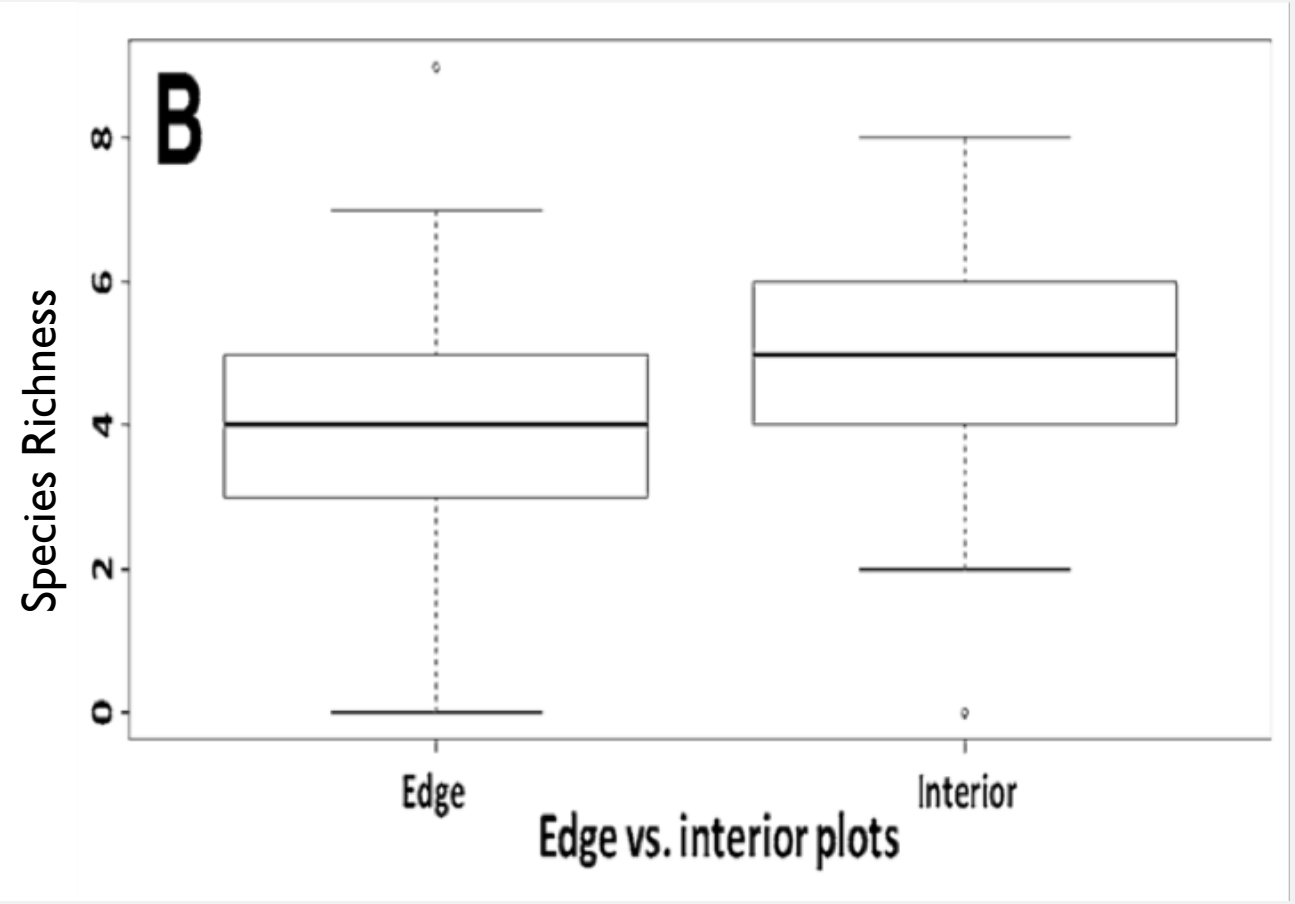

WHAT IS A PITFALL TRAP?

- Traps dug beneath the grounds surface to catch organisms.
- Drift fencing can be used to help direct organisms into the trap.



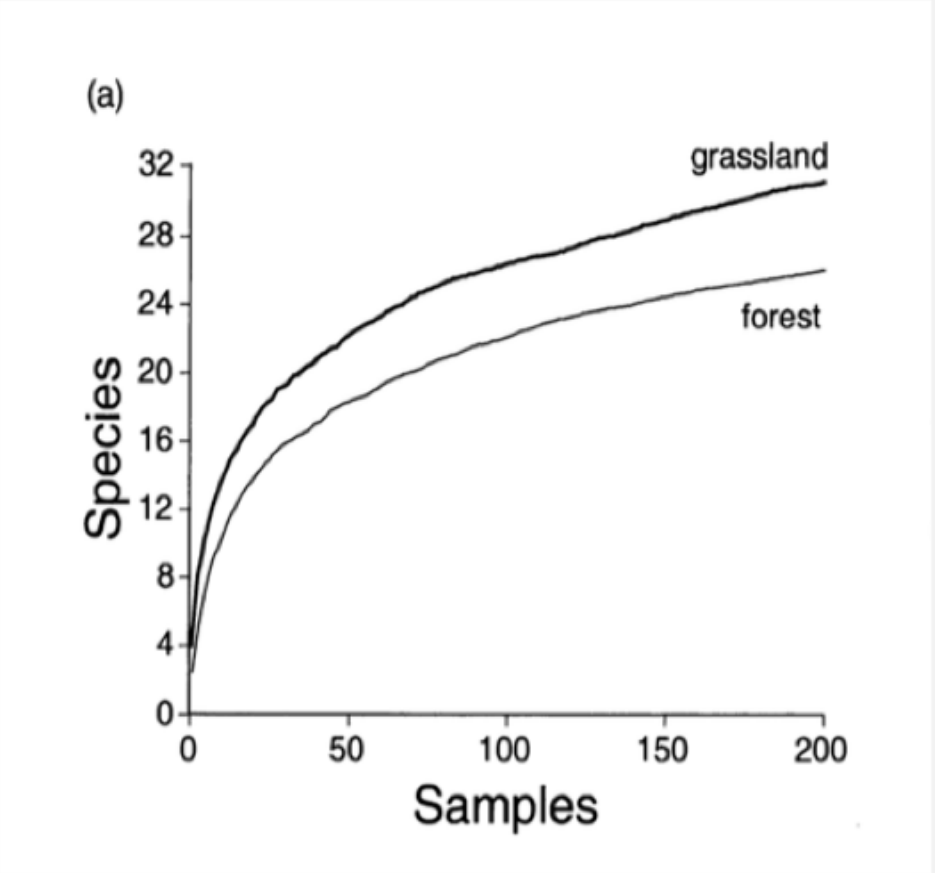
INTRODUCTION

- Study in South Africa used:
  - Pitfall traps
  - Active searches
  - Funnel trapping
- Short, intensive sampling was performed to reduce seasonal effects.
- Ants, spiders, and beetles were found most commonly in pitfall traps (Yekwayo et al 2016).



INTRODUCTION

- Grassland and forest habitats were observed in Madagascar
- Species richness was similar
- Grassland contained more species
- Proposed idea of human impact on certain species
- Landscape diversity is important for ecologists and habitat understanding (Fisher et al 2002).



INTRODUCTION

- Study in the Amazon used

  -Pitfall Traps

  -Drift fences
- 150 hours of actively checking on the pitfall traps is how the data was collected
- Found that areas with protection had more reptiles and amphibians (Ferreira et al 2017)

RESEARCH QUESTIONS

- Is there a significant difference in the number and diversity of nocturnal terrestrial organisms caught in the **forest** and and **grassland habitats**?

- Is there a significant difference in the number and diversity of nocturnal terrestrial organisms caught **with** or **without drift fencing** in the forest and grassland habitats?

LOCATION OF RESEARCH

Aerial view of Lancer Park of sampling sites.



Sampling sites in the grassland.

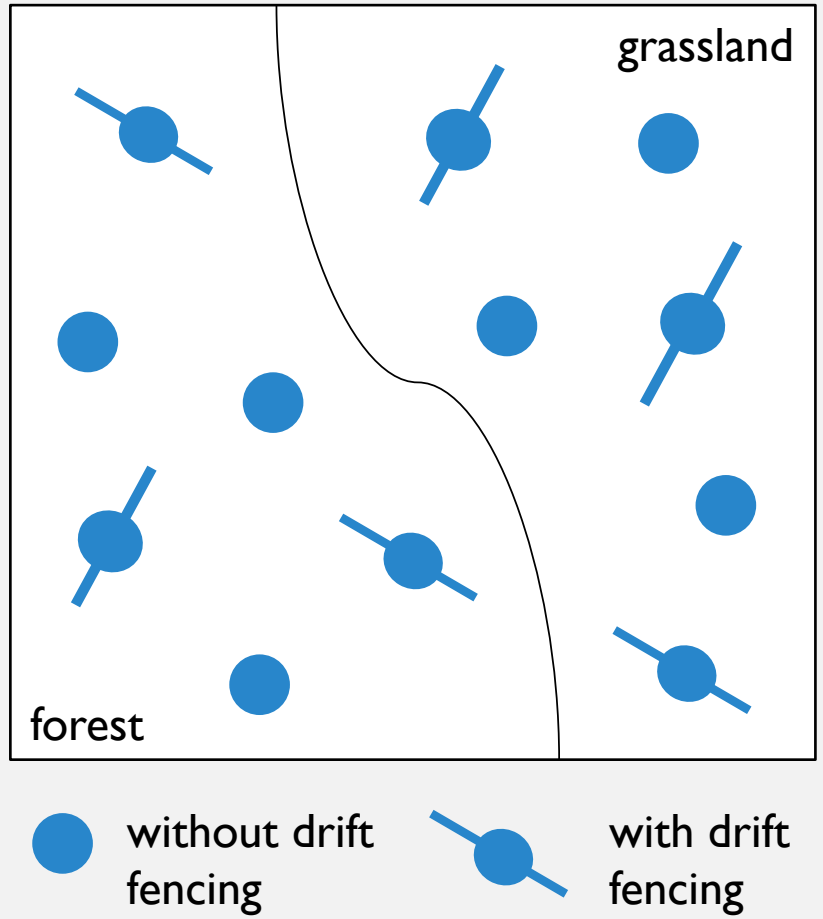


Sampling sites in the forest.

METHODS

METHODS

- Set up 6 pitfall traps in each habitat (12 total)
- Placed drift fencing on 3 traps at each site (6 total)



METHODS

- Checked traps every morning at 7am
    - Collect, characterize, and quantify species
- Closed traps during the day
- Reopened traps at night at 7pm
- The traps were be opened for a total of 12 hours each night
- Study lasted 8 days to ensure enough data was collected

METHODS

- Predictor Variables
  - habitat (grassland vs. forest)
  - use of drift fencing
- Response Variables
  - diversity of species collected
  - number of individuals collected total
- Standardized Variables
  - number of pitfall traps at each site
  - number of drift fencing used
  - amount of times traps are checked

METHODS

- Two-sample t-tests were used to compare the grassland vs. forest habitats and drift fencing vs. without drift fencing for:
  - average number of individuals
  - average number of species
  - species diversity

RESULTS

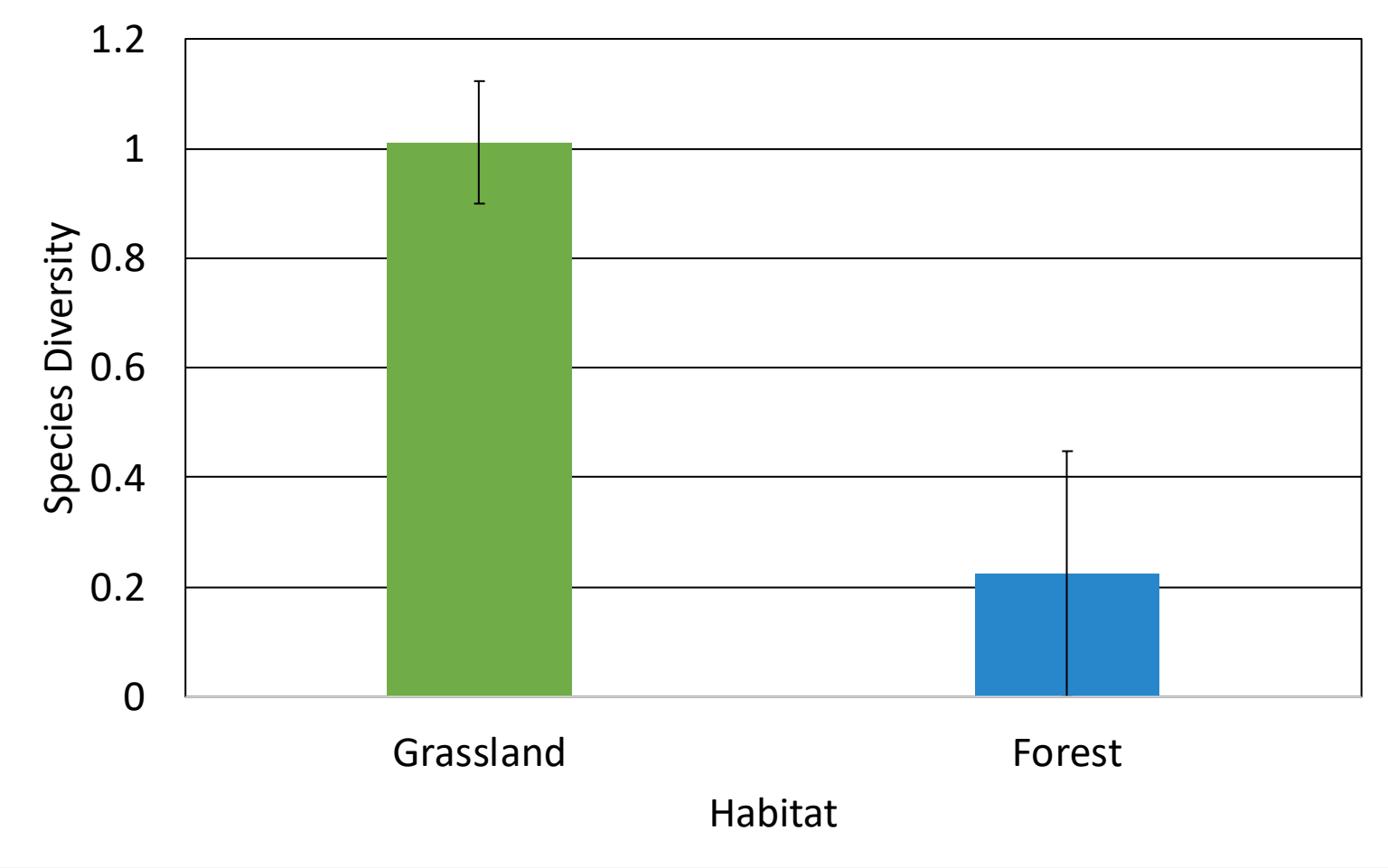
Wolf Spider

Southern Short-Tailed Shrew

Long-Bodied Cellar Spider

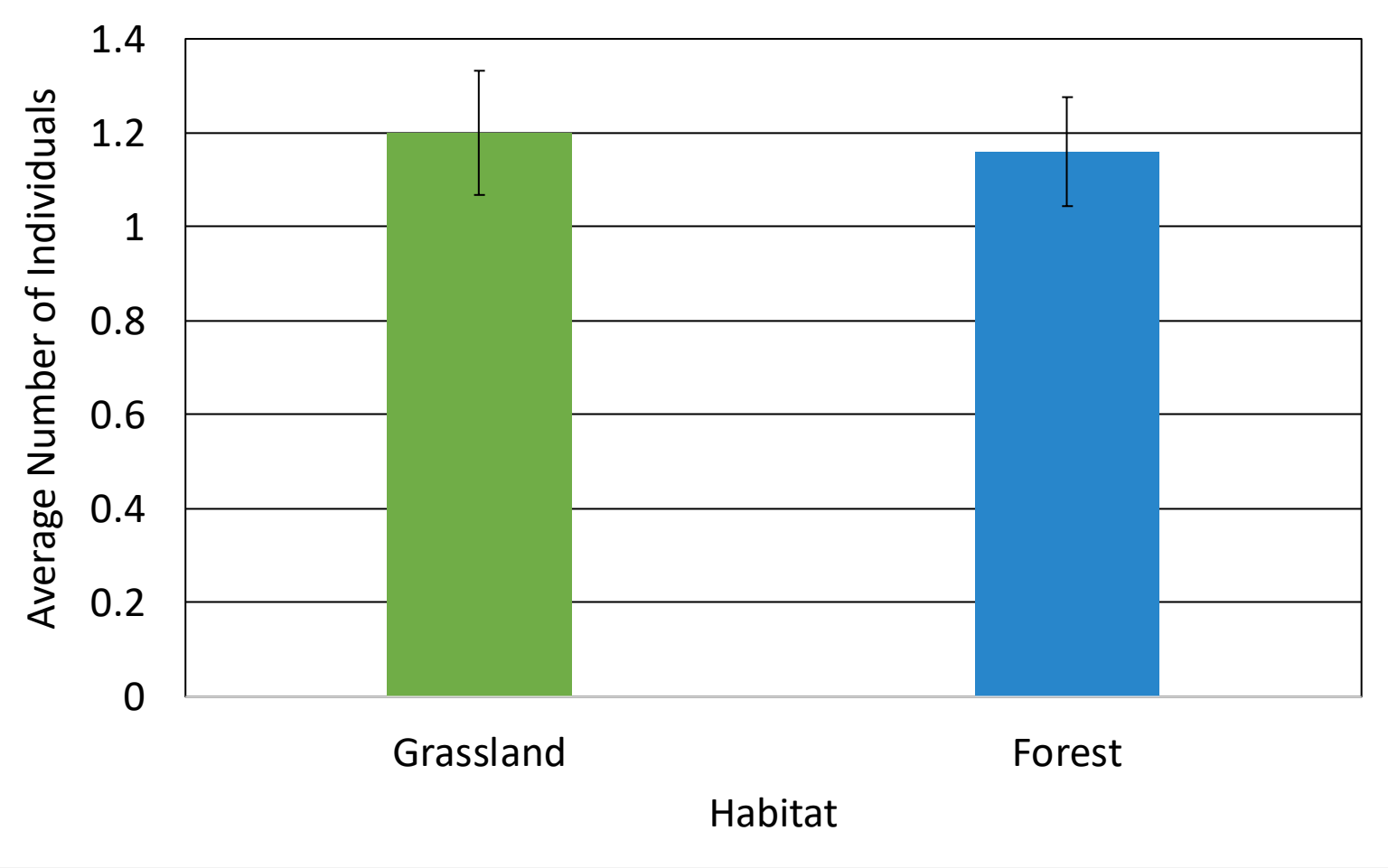
Wolf Spider

GRASSLAND VS. FOREST



T=3.14576
P=0.010

GRASSLAND VS. FOREST



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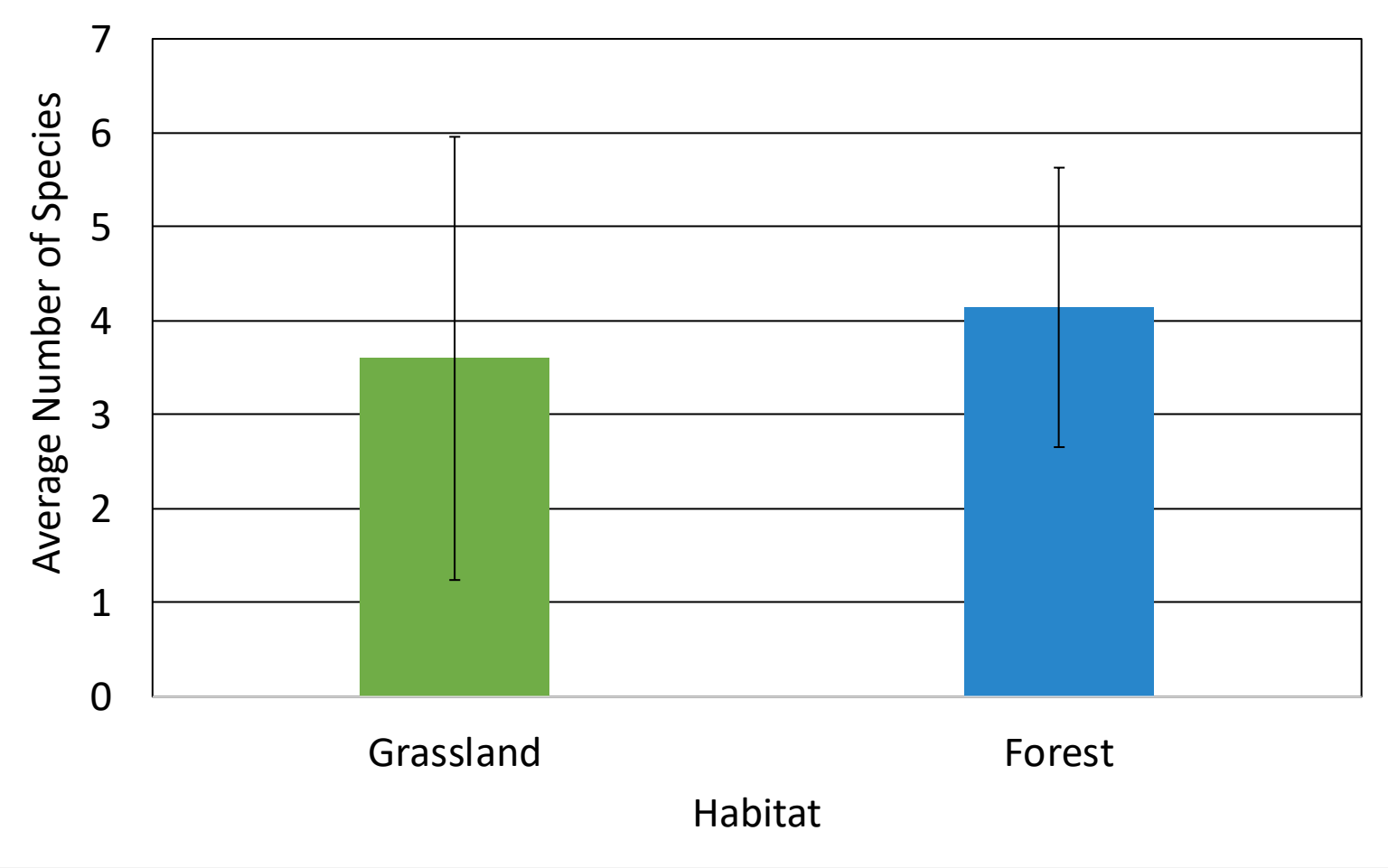
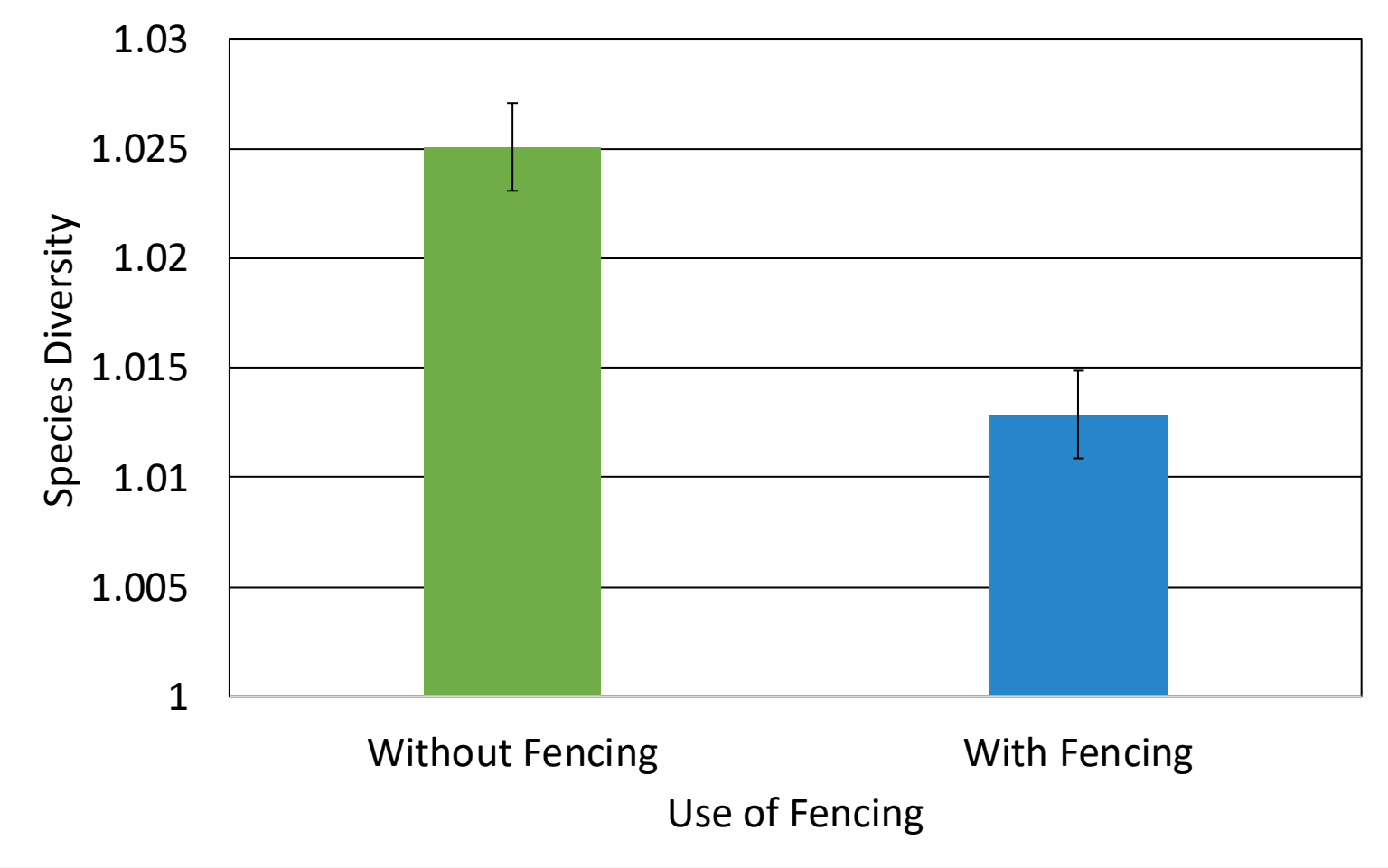
GRASSLAND VS. FOREST



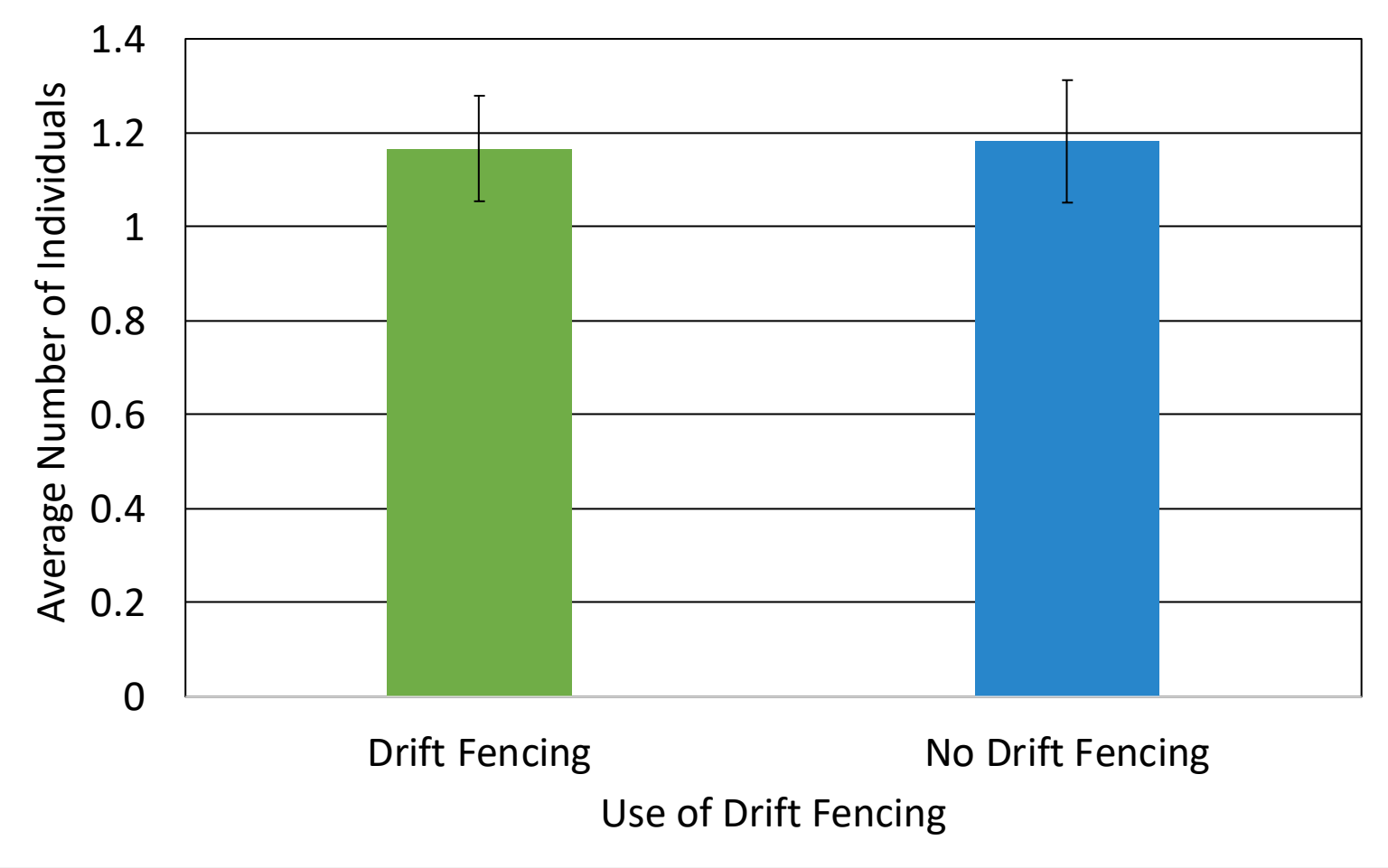
T=-0.65957
P=0.520

DRIFT FENCING VS. NO DRIFT FENCING



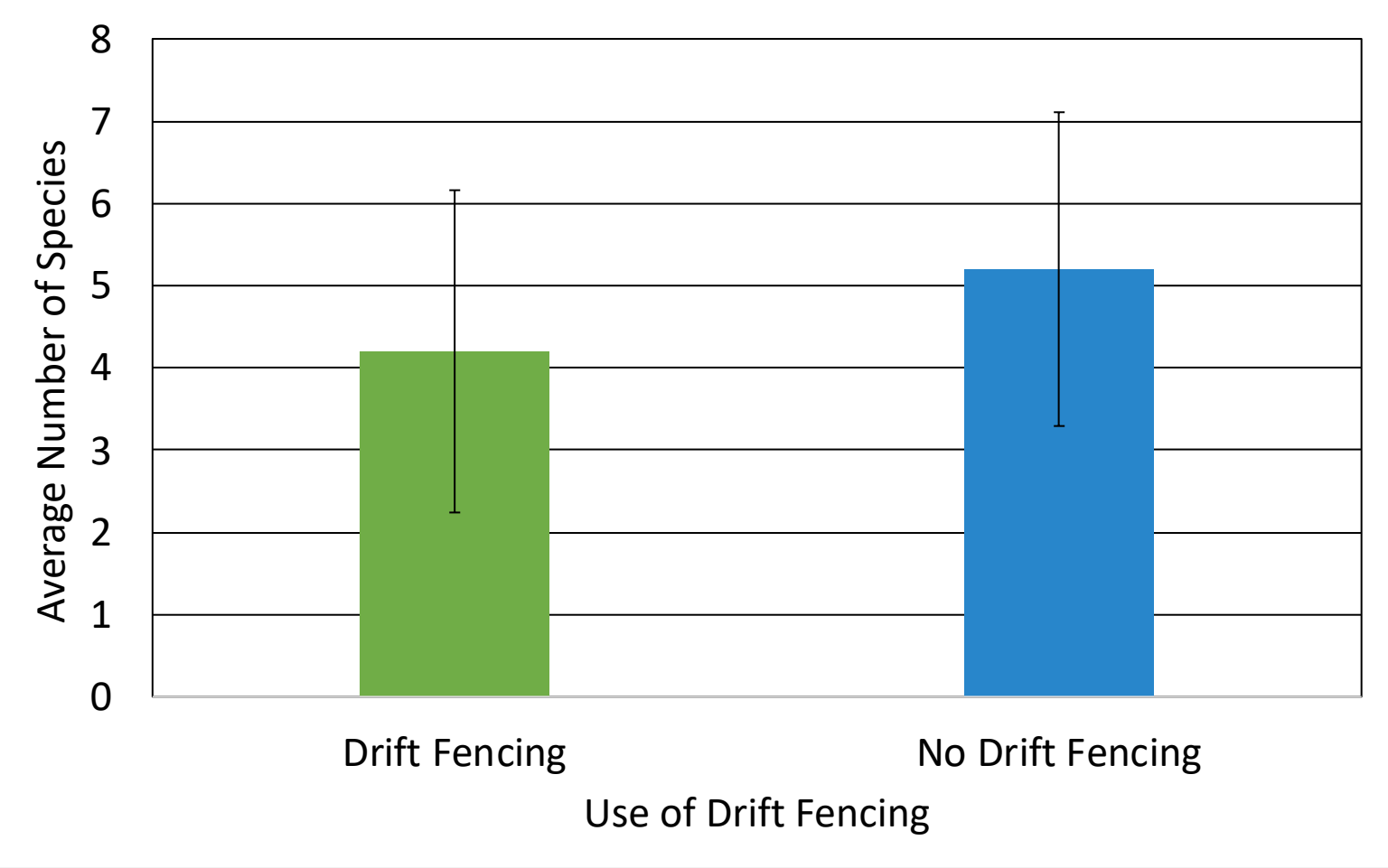
T=0.23471
P=0.818

DRIFT FENCING VS. NO DRIFT FENCING



T=-0.08124
P=0.936

DRIFT FENCING VS. NO DRIFT FENCING



T=-0.30615
P=0.764

CONCLUSIONS

- There is a significant difference in the species diversity of organisms caught in the forest and and grassland habitats of Lancer Park.
  - This connects to the previously mentioned study in Madagascar because they found the same result (Fisher et al 2002)

- There is not a significant difference in the number of nocturnal terrestrial organisms caught in the forest and grassland habitats of Lancer Park.

CONCLUSIONS

- There is not a significant difference in the number of nocturnal terrestrial organisms caught with or without drift fencing in Lancer Park.

- There is not a significant difference in the species diversity of organisms caught with or without drift fencing in Lancer Park.

CONCLUSIONS

- There is significant evidence for a linear relationship between air temperature and species dominance in the forest of Lancer Park.

- There is not significant evidence for a linear relationship between air temperature and species diversity in the grassland of Lancer Park.

DISCUSSION

- Overall, there were no differences in the diversity and community structure of the forest and grassland habitats of Lancer Park.

- This was probably due to the fact that our sample sites were very close to each other.

- This shows that although the amount of coverage increases as you enter the forest, it does not have an impact on the abundance or diversity of organisms when the sample sites are near one another.

DISCUSSION

- Our results were somewhat biased because:
  - Our traps were tampered with
  - Excessive rain caused a few traps to float out of the ground.

- Future studies to see diversity.

ACKNOWLEDGEMENTS

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WE ARE SHREW!
ANY QUESTIONS?