

TROPHIC POSITION AND DIETARY CARBON SOURCES OF INVASIVE MICE



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Background

- **The big picture:** Invasive species on islands are one of the leading causes of extinction
- Midway Atoll National Wildlife Refuge houses one of the world's largest albatross colony
- **The problem:** Mice on Midway have gained attention due to their attacks on nesting albatross
- **The solution:** To protect albatross colonies, mice will be eradicated in summer 2020
- **Knowledge gap:** The diet of island mice has not been studied in great detail; therefore, the implications of the eradication are largely unknown



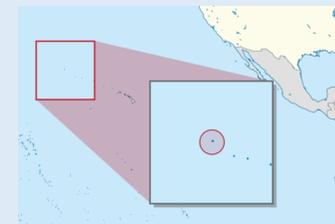
Nesting albatross on Midway Atoll National Wildlife Refuge

Study site & methods

Sampling sites for mice on Sand Island of Midway Atoll NWR Samples were obtained from 4 different habitat types



- Mice trapped every week, from April 2018-May 2019 (n = 317)
- Plucked and prepared hairs used for stable isotope analysis
- Kruskal-Wallis test and pairwise Wilcoxon rank sum tests



Key findings

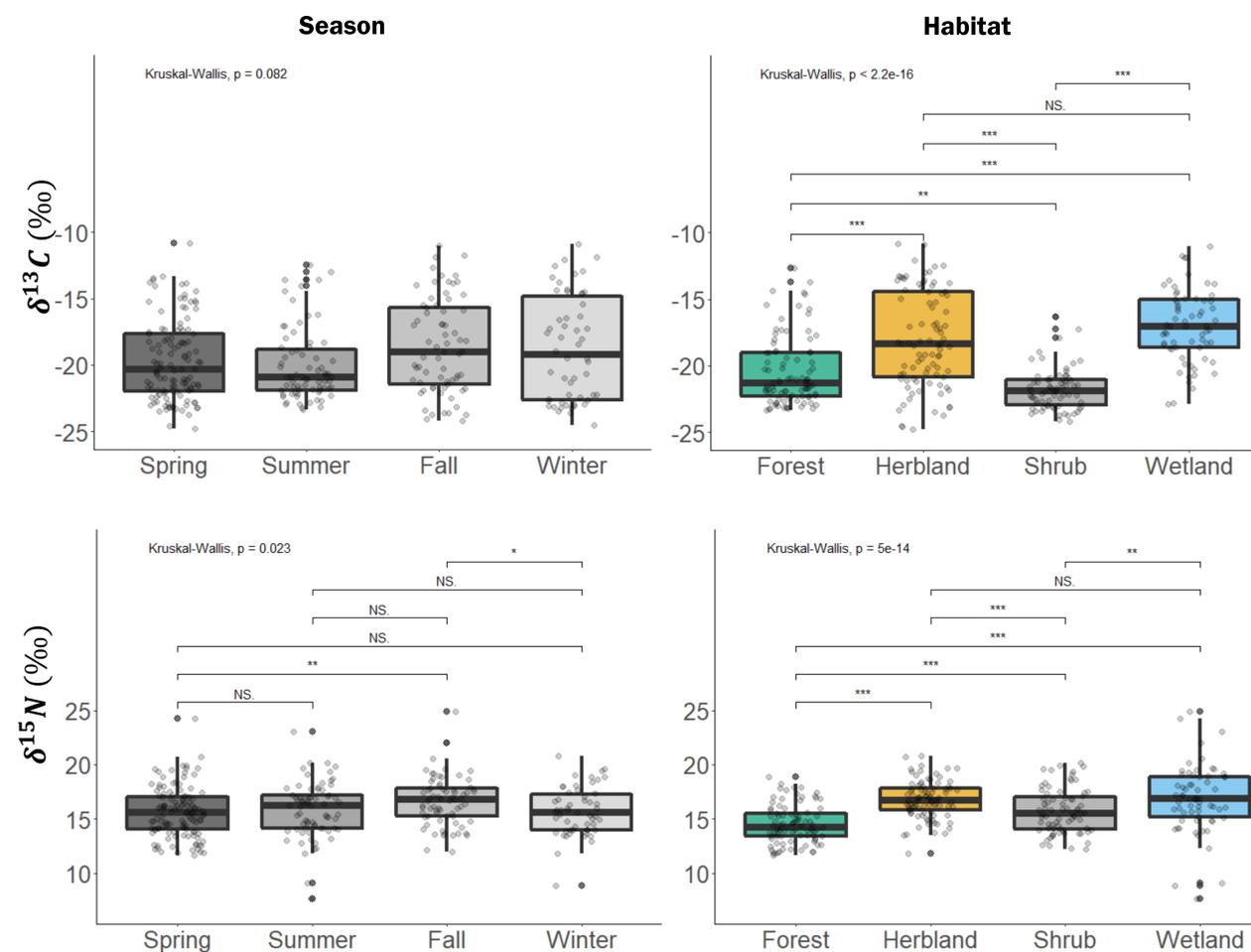
Habitat:

- The trophic position of mice is greatest in Wetland and Herbland habitats
- The dietary sources of carbon differ based on the habitat

Season:

- There are no significant differences in the dietary carbon sources of mice between seasons
- The trophic position of mice is greater in the fall than in the spring

Results



Objectives

- Determine the effects of season and habitat on the trophic position and dietary carbon sources of mice using stable isotope analysis

Hypotheses

Habitat:

- Trophic position of mice will be greater where arthropods are more abundant
- Dietary carbon sources will differ based on habitat

Season:

- The trophic position of mice will be greater in the spring and summer due to increased arthropod abundance
- Dietary carbon sources will be more abundant in summer due to increased plant density

Discussion

- The food sources of mice appear to be similar between the Wetland and Herbland habitats
- Since the trophic position of mice is greater in these areas, this could indicate that nitrogen enriched arthropods are a key food item for mice in these habitats
- The differences in dietary carbon sources across habitats could indicate the increased presence of marine carbon sources or C4 grasses



Acknowledgements

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Preventing Extinctions

