

Nitrate and Nitrite Levels in Relation to Ants at Twin Lakes Preserve



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Abstract

DNA sequencing can be used to accurately identify various species. This process was used to classify twelve samples from Twin Lakes Preserve in Wantagh, New York. In this study, it was found that the species that composed approximately 63% of the valid samples is successful in environments with high nitrate levels. This indicates high nitrate/nitrite levels at Twin Lakes Preserve. If the ant species identified are commonly found in soil with high nitrite content, then it is likely that Twin Lakes Preserve soil has high nitrite levels. This places the population at risk for Methaemoglobinaemia, a condition caused by the excess nitrite in the blood, affecting the ability of the hemoglobin to carry oxygen throughout the body

Introduction

Soil composition is a critical factor in the environment, determining the wildlife that can inhabit the area. Ant specimens were collected and classified with the purpose of identifying indicators of specific soil compositions; specifically those with high concentrations of nitrite. By identifying these organisms, the quality of drinking water from aqueducts can be predicted.

Materials/Methods

Collect and identify samples:

Measure and take pictures of specimens.

Kill Specimens:
Freeze at -20° Fahrenheit.

DNA isolation and
amplification

DNA Gel
Electrophoresis

Send DNA
sequences to lab
for processing.

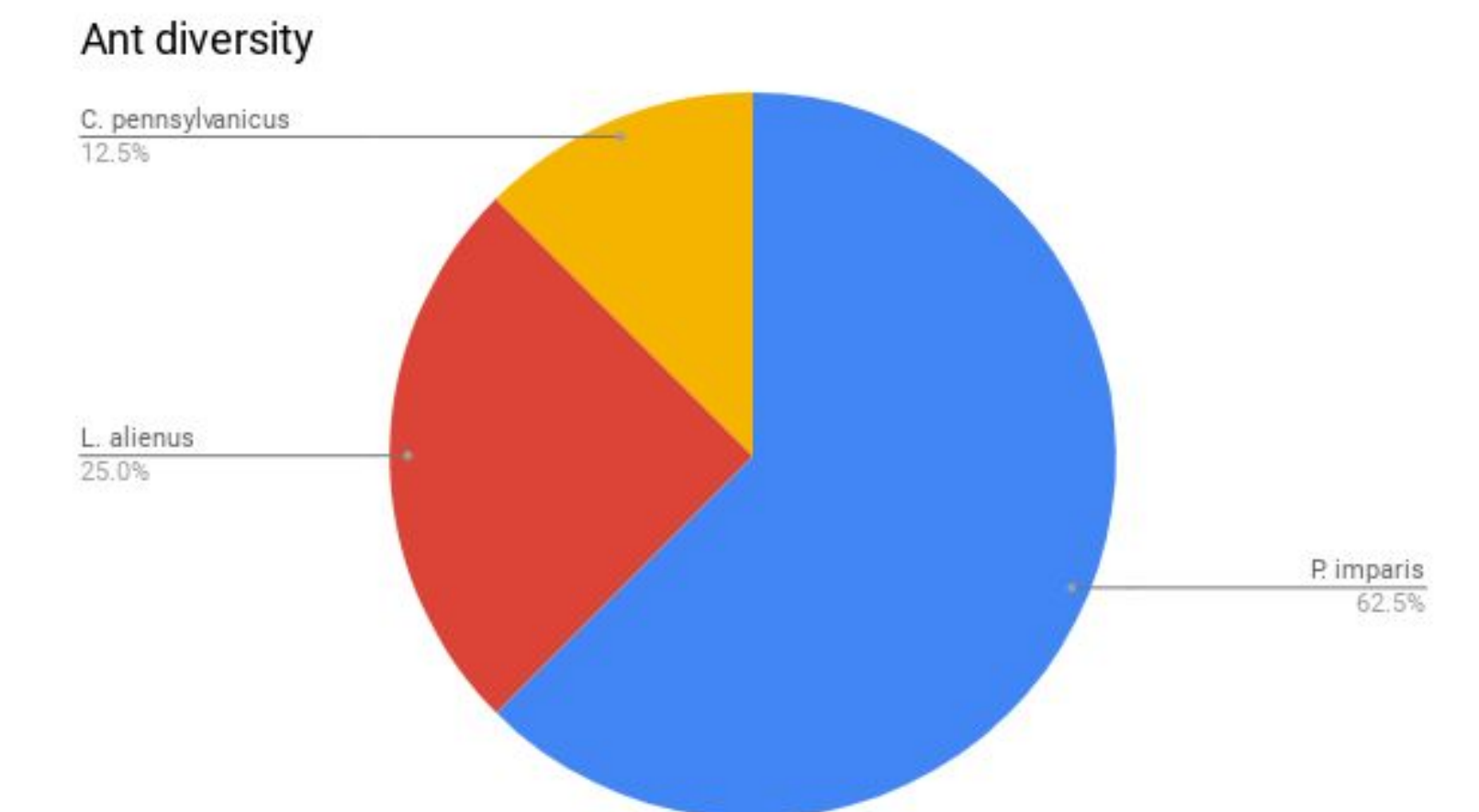
Analyze data

Figure 1: Sample 3, of the twelve samples obtained from Twin Lakes Preserve.



Results

Figure 2: Pie chart representation of ant diversity at Twin Lakes Preserve



Discussion

Due to the relatively high population of *Prenolepis imparis*, it can be concluded that the soil at Twin Lakes Preserve is high in nitrate/nitrite. Due to a small sample size, this study may not be an accurate representation of the populations of ants within the preserve, and in the future a similar study could be done with a significantly larger sample size.

References

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