



Ants In NYC: What Are They All About?

Henry Brand, Cy Donohue, Mason Kaplan, Dr. Nicholas Harbison
Saint Ann's School 129 Pierrepont Street Brooklyn, NY 11201

Funded by the
Thompson Family
Foundation

Abstract

We set out to survey the diversity of Ant life in New York City Parks, asking the question: what is the state of ants in our Parks? We set out to catch ants in Central and Prospect park, and observe the species and location of the insects. Due to a few setbacks, we were only able to obtain specimens from Prospect Park.

Introduction

New York's is home to an estimated 16.7 billion ants⁴.

These ants have an impact on the plant life and cleanliness of New York streets, like their ability to aerate soil, allowing plants in New York's parks, while also helping to spread seeds by carrying them into their colonies^{1,2}.

These are not the only positive effects ants have on the New York City experience. They also are important in food waste removal, with one study finding that Ants in New York City, Denver, and Nashville remove an average of 3.5 pounds of food waste per person each week. The city is host to wide variety of ant species, such as emarginatus, dubbed the "ManhattAnt", Tetramorium immigrants, known as the pavement ant, which is largely responsible for the waste removal that ants contribute to New York City. These species make up a fraction of the ant diversity in New York, however, as a North Carolina State University study found 42 different species of ants roaming New York City⁵.

We planned to explore this diversity by sampling ants from all over the city.

Materials & Methods

We attempted to collect ants three times in Prospect Park. We set out apple slices on index cards in six locations, yet were unable to secure ants on the first two attempts. However, on the third we successfully sampled ants on two of our index cards.

DNA was extracted from the ants using the Rapid DNA extraction protocol³. PCR was done using primers for the *COI* gene.

Results

Unfortunately, our samples did not yield sufficient DNA to define the species of ants. We then took the species definition into our own hands by comparing images of our ants to images of ants found on the phylogenetic tree.



Figure 1. Specimens collected from location A



Figure 2. Specimens collected from location B

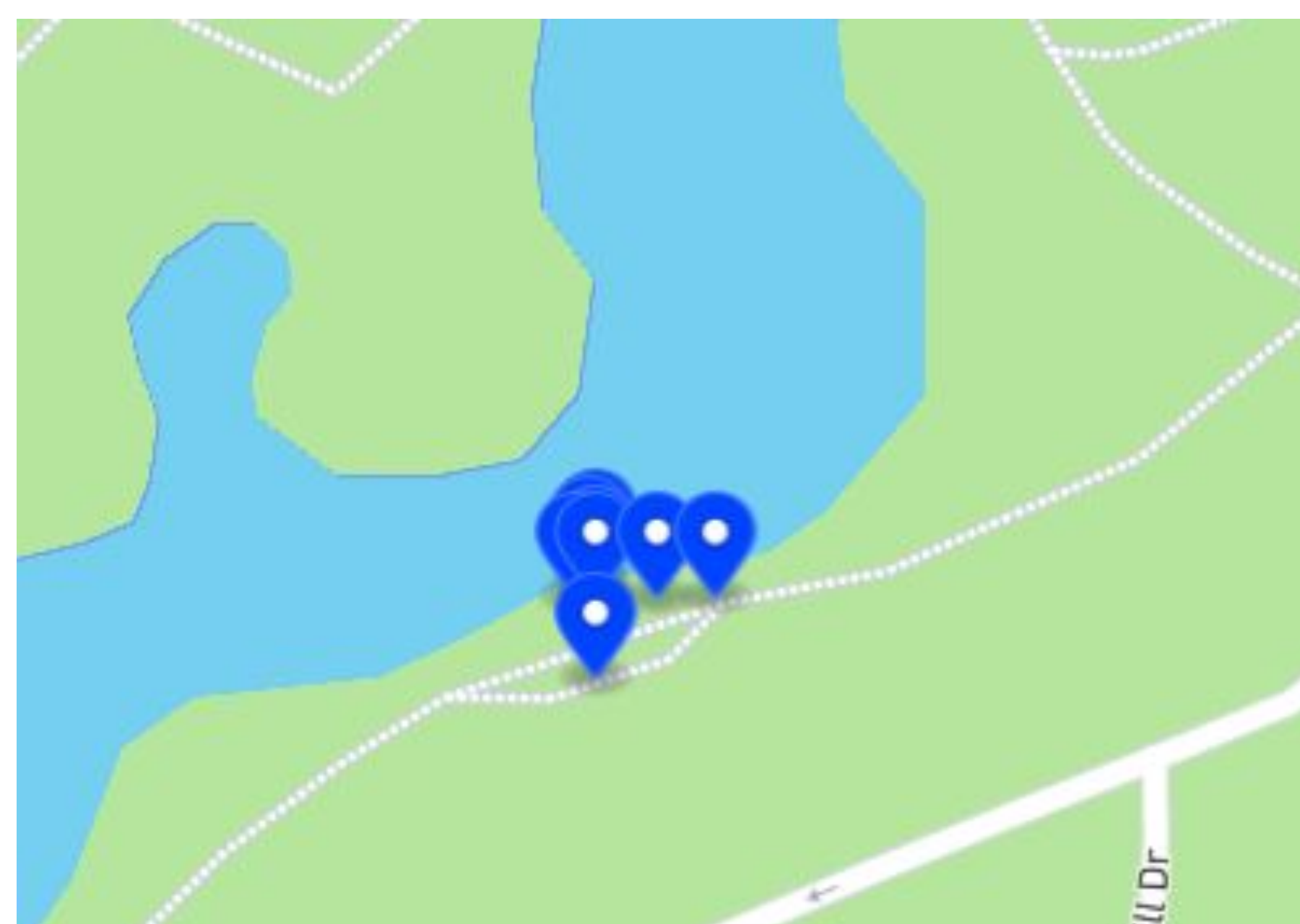


Figure 3. Sample collections sites. (A) Central Park. (B) Prospect Park

Discussion

We think that its one species of ant due to complications either the extraction or the per didnt work and what we did wrong

References

1. Turner, Joe. "Ants Are Cleaning Up the Streets of NYC | Scientific American." *Scientific American*, Scientific American, 3 Dec. 2014,
2. How Ants Clean Up Our Food Waste and Make Cities Healthier | AMNH. (2024). American Museum of Natural History. <https://www.amnh.org/explore/videos/biodiversity/ants-healthier-cities> "How Many Ants Live in New York City? – Your Wild Life." *Your Wild Life*, <https://yourwildlife.org/2013/08/how-many-ants-live-in-new-york-city/>. Accessed 17 Nov. 2024.
3. 3. *Rapid DNA isolation*. (n.d.). <https://dnabarcoding101.org/lab/protocol-2.html#standard>

Acknowledgements

We are grateful to the DNA Learning Center - UBP staff, Cold Spring Harbor Labs and to Saint Ann's science department. We also thank the NYC Parks Department.