

# Introduction

New York City is an urban environment that houses many hubs of nature in its biggest parks. However, it's also a center of import and export, with many products, ships, and people coming in and out of its waters. With this comes more opportunities for non-native species to invade these parks. Using bioblitz data along with official invasive species lists from the state, we found what percentage of the species observed in the parks were invasive, looking to find some sort of locational correlation or trend.

# Hypothesis

Parks along bodies of water will have an increased concentration of invasive species compared to parks that were located further inland.



# Methodology



We chose to analyze the BioBlitz events of the years 2017 - 2025. Each year took place in a different location and had its own set of data, with the species found, separated into groups by classifications such as genus, and a few positional/time specifics. In the analysis of this data, we cross referenced the species list using a Python script with the official listing of invasive species, aggregated by the New York State Department of Environmental Conservation, which contains prohibited and regulated species of both flora and fauna (Invasive Species Regulations, n.d.).



# Invasive Species in New York City Parks

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# Discussion & Implications

The compiled data fails to show a general trend of location's impact on invasive species concentrations. Our findings do not support or reject the original hypothesis, and the results are too uncorrelated to make any concrete conclusions. Although we were unable to find a solid answer to the question of how location impacts the proportions of invasive species in New York City parks, finding the proportions themselves still has significance. By creating a baseline for invasive species amounts throughout these parks, future researchers will be able to measure how invasive species have grown or shrunk in proportion to total species in an area over time. By understanding these proportions, the city of New York can make decisions on which parks require more efforts in maintenance. Continuing to track these numbers can allow the city to plan and enforce conservation efforts if concentrations start to get worrisome.

# Limitations

Most of the limitations that impact our results come directly from how the data was collected. The BioBlitz is an event held by the Macaulay Honors College at approximately the same time every year. With the BioBlitz being held in different locations each year, it is hard to compare the proportions of invasive species at a specific location, as we only have a snapshot of that location at one time. The proportion of invasive species in any given location would likely change throughout the years, and the data of the BioBlitz doesn't provide a fair comparison in that regard. Another limitation of the study is it occurring the same time every year. While this prevents bias in regards to seasonal differences across parks, it also means that our data might miss certain species which only show up in a different season. Ideally, all data would be from the same year, across the entire year. A final limitation comes from how the students collect the data. By offering very little incentive for student participation, along with some students being afraid of the species that they need to observe, data collection varies heavily among groups, creating huge room for error.

# References



## Data & Results

Invasive Species percent of Total - BioBlitz Data

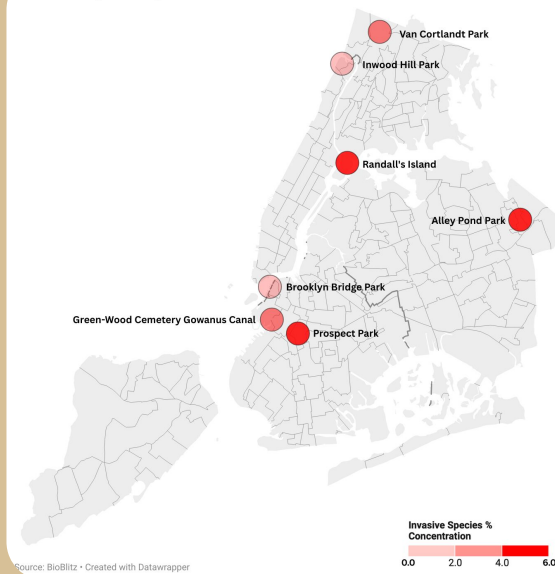


Figure 1

The compiled data above fails to show a general trend of location's impact on invasive species concentrations. Our findings do not support or reject the original hypothesis, and the results are too uncorrelated to make any concrete conclusions. Across all locations a total of 98 unique invasive species were recorded, representing 3.3% of the overall biodiversity documented throughout the BioBlitz event (Figure 2). The highest concentration of invasive species was recorded at Alley Pond Park, with 5.00% of all the species at the park being invasive based on the 25 recorded species against the total of 500 (Figure 3 & 4).

Invasive Species vs Non-Invasive Species

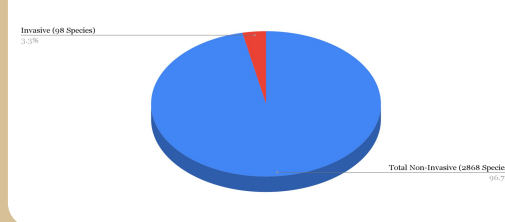


Figure 2

Location vs. Invasive Species as Percent of Total Species Recorded

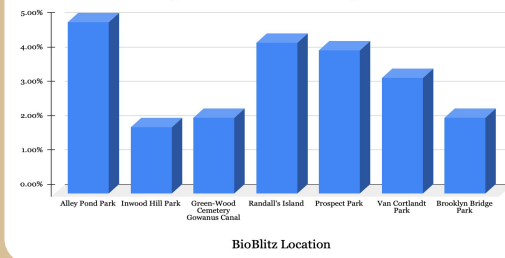


Figure 3

Location vs. Invasive Species & Total Species Recorded

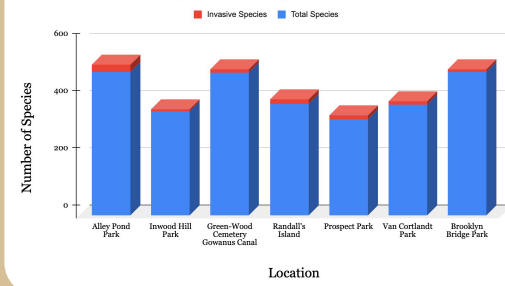


Figure 4

