Bird Behavior on Randall's Island

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Introduction

Randall's Island is a unique location in its ability to foster both a thriving avian population and hundreds of human visitors and park goers each day. The many fields and waterfront picnic areas attract visitors and birds alike- but the more secluded salt marsh is equally important in the daily activities of the birds. The juxtaposition of natural areas with bustling human activity is not uncommon in studies on urban parks. The inclusion of a salt marsh, however, makes Randall's Island a location of exceptional interest for a study on human impact on bird behavior. Bird behavior can be an important indicator of the health of an ecosystem, with a study even stating that "The most immediate and direct responses of birds to environmental changes are behavioral and physiological involving changes in the characteristics of individual" (Mekonen, 2017). Bird behaviors can be contextualized by these differences in environment- for instance, increased foraging or eating behaviors can reflect the difference in abundance of food in a park setting as opposed to a salt marsh setting. This means that significant conclusions about the health of the Randalls Island and urban park environments as a whole can be drawn from the observation of the birds that inhabit the park.

Objectives/Hypothesis

This study takes a closer look at birds beyond just classification and count to observe behavior. Observing behavior in both an abundant natural environment and a heavily human populated recreation area can help establish a clearer picture as to how birds in urban parks utilize natural areas as opposed to developed spaces.

Methods

- Surveys were conducted once a week for four weeks between July-August 2025.
- Surveys were conducted at two sites on Randall's Island- the East River Picnic Area, and the Little Hell Gate Salt Marsh. Each site was viewed from two different vantage points, with each vantage point being stood at for 20 minutes.
- Birds were observed, identified, and categorized as performing one of many potential behaviors (eat, reproduction, or passive) . Behavior classification was borrowed from Ke et al. (2024).
- Air temperature, tide, and average wind speed were recorded at each site.

Results

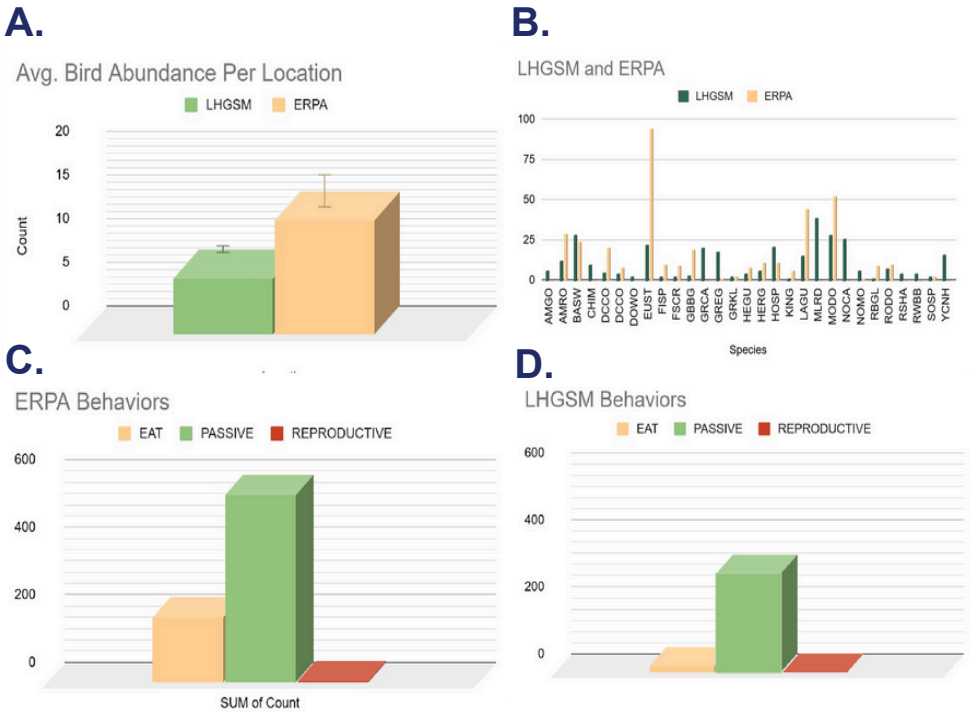

Figure One. **A.** Average bird abundance per site for every sampling period. **B**. Total count of bird species per location. **C**. Sum of count of each of three behaviors for all birds counted for the ERPA site (high park patrons). **D.** Sum of count of three behaviors for the LHGSM (low park patrons).

Summary

Birds were more likely to exhibit both ground and aerial foraging behaviors in ERPA compared to LHGSM. More common urban birds, such as Rock Doves, Mourning Doves, House Sparrows, and European Starlings were found in the urban picnic area, which reflects their generalist nature and ability to forage in a variety of environments. They were also found in the salt marsh, though typically in a lesser quantity. However, we found that other species like the Gray Catbird and Northern Cardinal, which were found in the marsh, were not found at all in the picnic area. While this was expected of waterbirds like the Yellow Crowned Night Heron and Mallard, both found only in the salt marsh, this level of habitat selection in songbirds was surprising.

Discussion

Overall, this study has implications for improving species diversity in urban parks. One clear path to this is planting more native shrubs in these locations. In addition to being beneficial for shrub nesting bird species, shrubs (and the birds they attract) also have aesthetic value for parkgoers. Additionally, an increased population of catbirds and cardinals may be helpful in decreasing the growing spotted lanternfly population, as these bird species are some of the most frequently sighted avian predators of this invasive species. (Johnson et al., 2023). It should be noted that there were some factors limiting the accuracy of the survey. First and most glaring is the absence of professionally experienced birders, although all birds sighted during surveys aligned with commonly sighted birds at the island and were identified as thoroughly as possible. Additionally, the first picnic area site was surveyed at a 360 degree level as opposed to the 180 view of the salt marsh and latter picnic site.

Citations

Johnson, A. E., Cornell, A., Hermann, S., Zhu, F., & Hoover, K. (2023). Using community science to identify predators of spotted lanternfly, Lycorma delicatula (Hemiptera: Fulgoridae), in North America. Bulletin of Entomological Research, 113(5), 637–644. https://doi.org/10.1017/S0007485323000317

Ke, A., Sollmann, R., Frishkoff, L., Echeverri, A., Zook, J., & Karp, D. S. (2024). Effects of agriculture and nature reserves on avian behavior in northwestern Costa Rica. Conservation Biology. https://doi.org/10.1111/cobi.14241

Mekonen, S. (2017). Birds as Biodiversity and Environmental Indicator. Core.ac.uk, 7(21). https://core.ac.uk/reader/234657570Saintilan, N. (2009). Australian saltmarsh ecology (pp. 149–155). Csiro Pub.

Randall's Island Park Alliance