

Introduction

What are the main characteristics (ecosystem geography, human attraction, etc.) of Central Park, Prospect Park, and Bronx Park?

To what extent, based on those characteristics, do these parks offer optimal habitats that allow raptors such as hawks and falcons to thrive well?

Hypothesis

Based on our findings and background information, we predict that **urban parks with a geography of high tree density, low human attraction, along with more consistent higher elevations are likely to sustain the highest populations of hawks and falcons.**

Materials and Methods

We visited and thoroughly studied the three NYC parks each for over 2 hours. While utilizing iNaturalist to track sightings of Red-Tailed Hawks, Cooper's Hawks, and Peregrine Falcons across these major parks over multiple years.

Eco-geographical Characteristics

Central park is large, less dense in foliage, primarily made up of pathways and rock outcrops, multiple areas with high elevation, and high in human attraction.

Prospect Park has most of its space closed off, with that space being very dense in foliage, minimal human attraction, and large water sources

Bronx Park is very small, devoid of dense foliage and trees, and primarily consisting of recreational spots such as playgrounds.

Data and Results

Image 1



Image 2

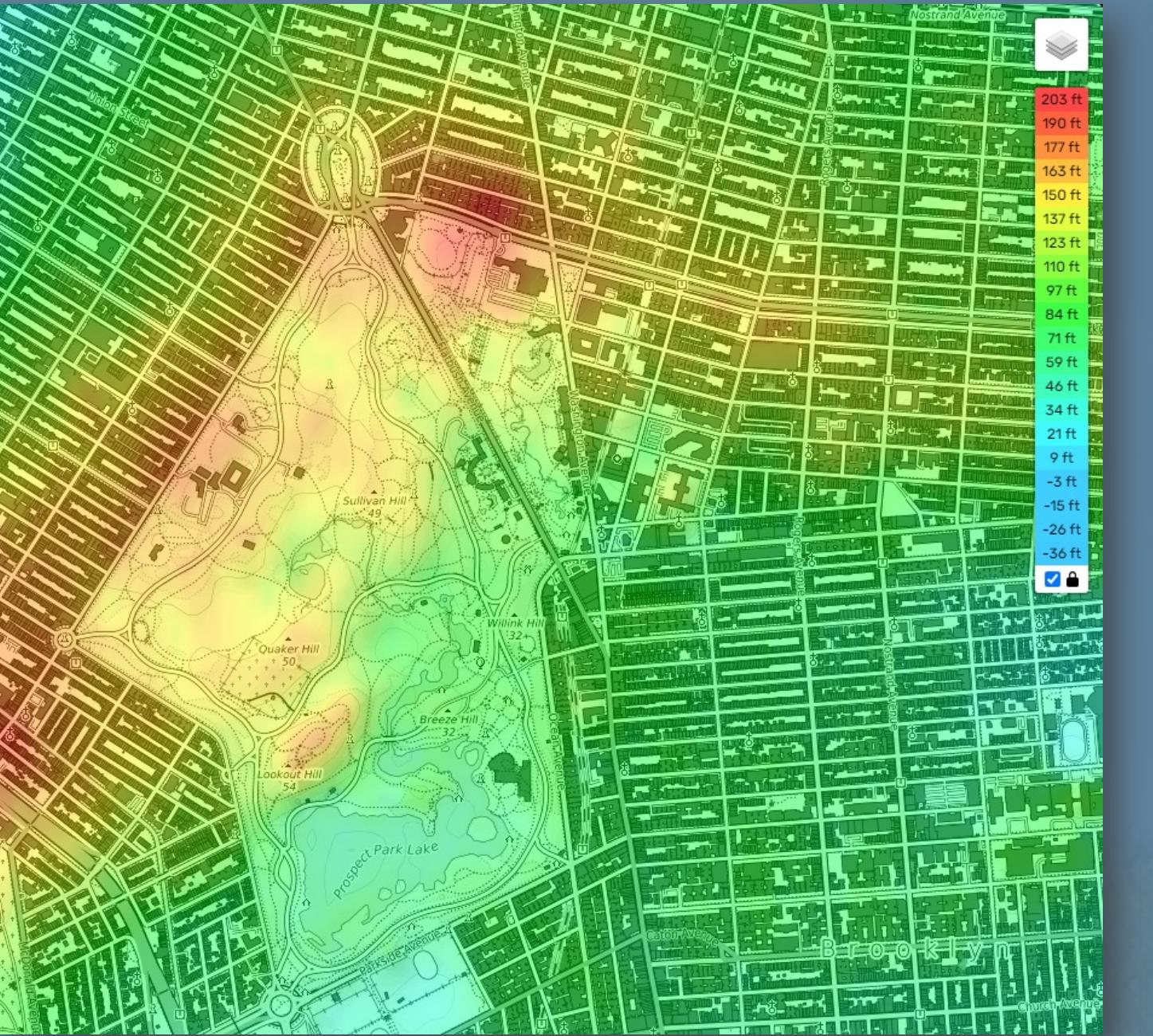
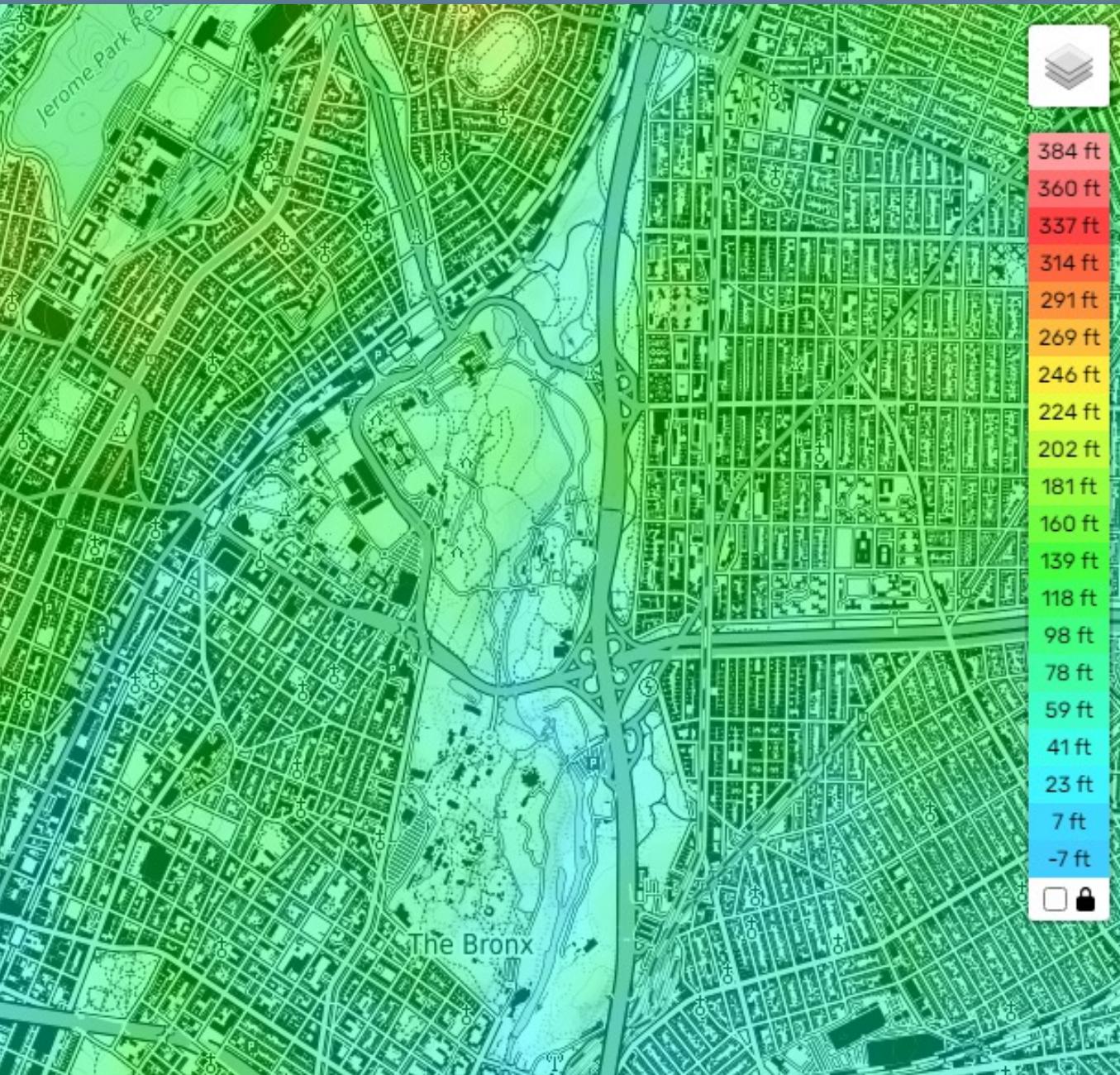
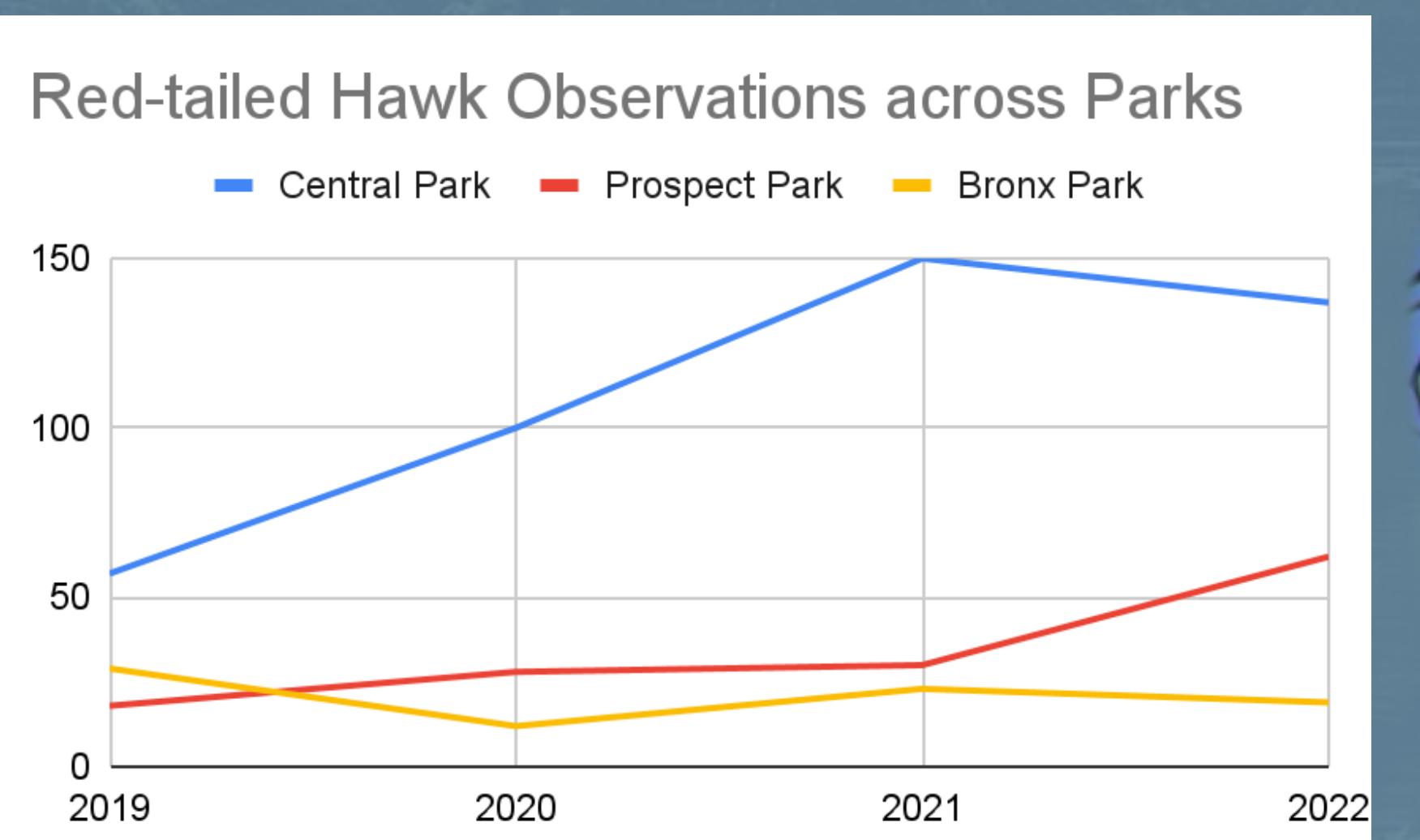


Image 3



Images one through three showcase the **topography** of Central Park, Prospect Park, and Bronx Park, respectively, provided by topographic-map.com. These visuals portray **elevation levels in feet** across the parks, represented by a color spectrum ranging from blue for lower elevations to red for higher elevations.

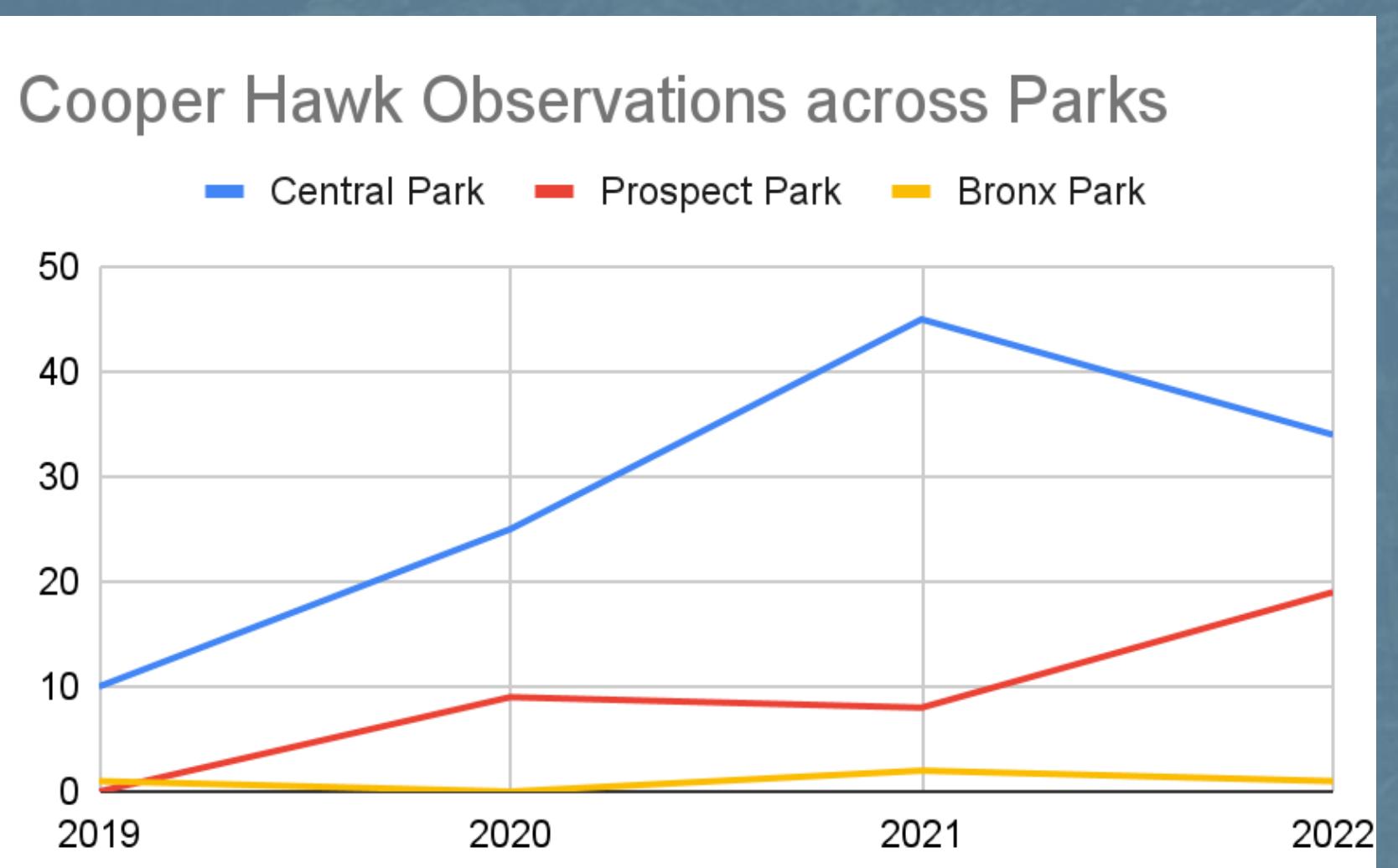
Graph A



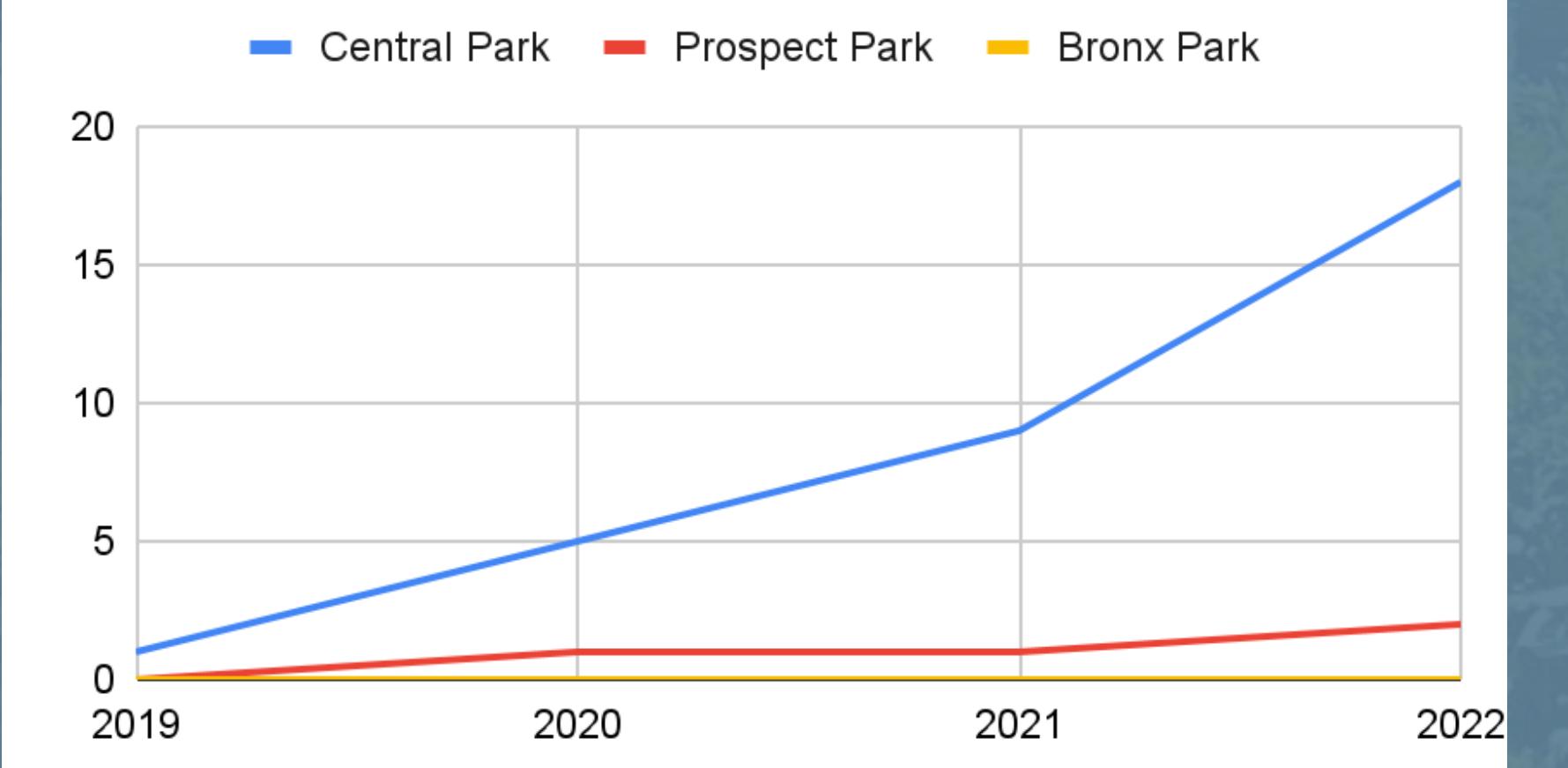
Red-Tailed Hawk



Graph B



Peregrine Falcon Observations across Parks



Peregrine Falcon



Cooper Hawk

Graph A shows the number of red-tailed hawk observations in all three NYC parks from 2019-2022. Graph B shows the number of Cooper's hawk observations in all three NYC parks from 2019-2022. Graph C shows the number of peregrine falcon observations in all three NYC parks from 2019-2022. In all three graphs, the blue line represents the Central Park observations, the red line represents the Prospect Park observations, and the yellow line represents the Bronx Park observations.

Conclusions

Our initial hypothesis, anticipated Prospect Park to yield the highest number of raptor sightings.

Prospect Park best aligned with the characteristics of an ideal urban park for raptors, as our hypothesis stated would support the highest number of raptors.

Contrary to our initial hypothesis, empirical observations from 2019 through 2022 reveal that Central Park consistently presents the highest frequency of sightings for Red-Tailed Hawks, Cooper's Hawks, and Peregrine Falcons.

These findings challenge our initial assumptions and will require further investigation into the ecological dynamics supporting these concentrations within urban environment.

Literature Cited

University of Wisconsin-Madison. "Woodland Hawks Flock to Urban Buffet." *ScienceDaily*, ScienceDaily, 6 Nov. 2018, www.sciencedaily.com/releases/2018/11/18106192739.htm

Caizeragues, Aude E., et al. "Are Behaviour and Stress-related Phenotypes in Urban Birds Adaptive?" *Journal of Animal Ecology*, vol. 91, no. 8, Aug. 2022, pp. 1627–41. DOI.org (Crossref), <https://doi.org/10.1111/1365-2656.13740>.

Kettel, Esther F., et al. "The Breeding Performance of Raptors in Urban Landscapes: A Review and Meta-Analysis." *Journal of Ornithology*, vol. 159, no. 1, Jan. 2018, pp. 1–18. Springer Link, <https://doi.org/10.1007/s10336-017-1497-9>.