

CITATIONS



# WAR ON RATS

*How effective have NYC initiatives been in reducing the brown rat population?*

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## INTRODUCTION

- Rats are **transmitters** of illnesses like salmonellosis, hantavirus, and Leptospirosis. NYC houses **~3M rats**.
- “War on Rats”: **Stricter regulations** on waste from businesses, concentrated effort on “**rat mitigation zones**”, the installation of **1000+ “Empire bins,”** cleaning up **tree beds**, and anti-rat activists that clean up **rat-infested areas**.
- The **goal** of this research was to investigate **how successful** the initiatives have been in reducing the number of rodent residents in NYC.
- We **hypothesized** that NYC initiatives have **not been successful** at lowering the rat population.

## METHODOLOGY

- We used **Python’s Matplotlib library** to visualize **NYC Open Data** and **iNaturalist** data on brown rat sightings. We graphed these sightings from **2020 to 2025**. For Figure 2, we used **NYC Open Data** data and computed the number of rat sightings by **borough** for the year **2022** (the start of the initiatives) and **2025**. Then, we **subtracted** the number of sightings in **2022** from **2025**.

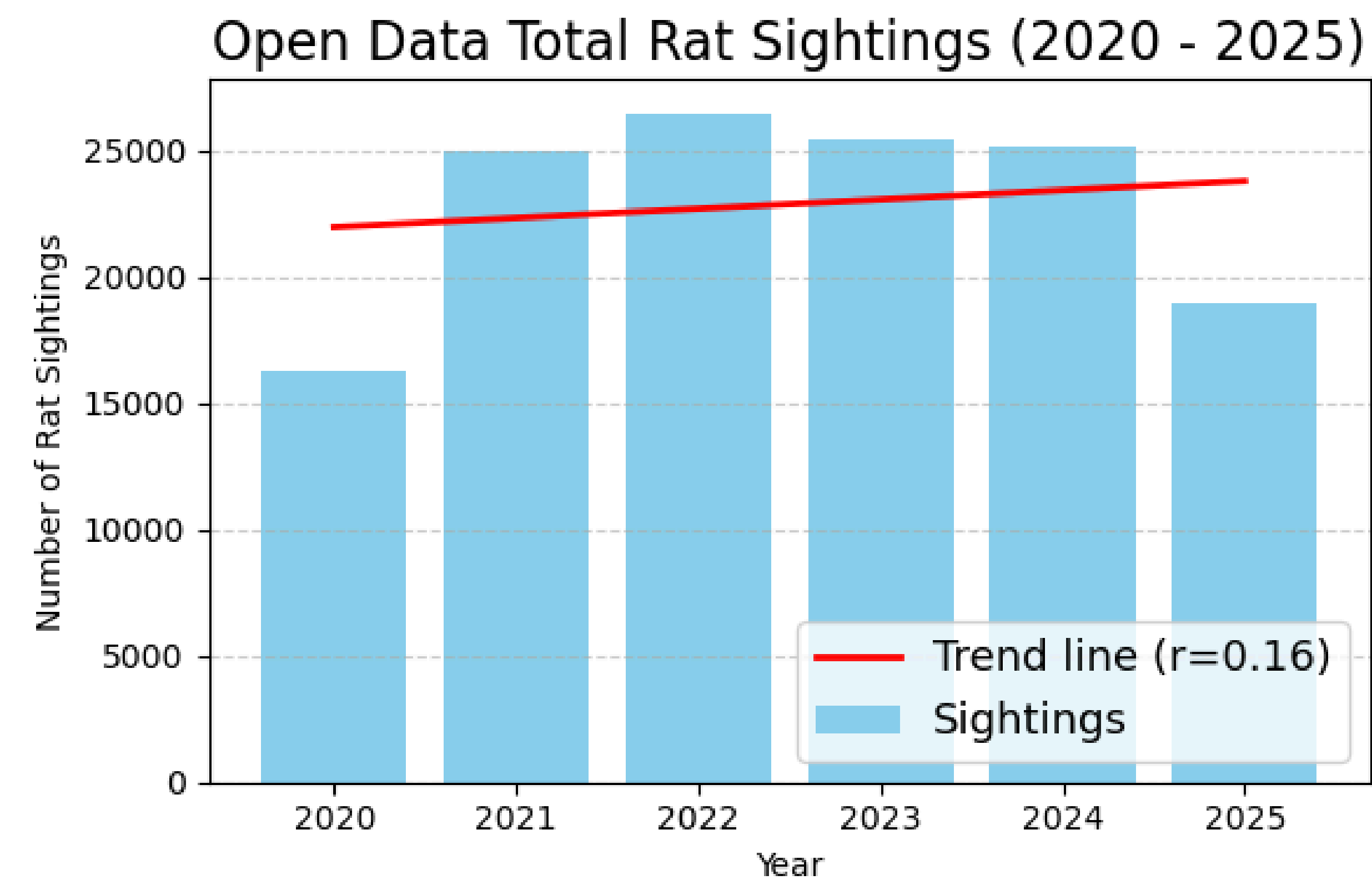


Figure 1

Open Data: Decrease in Rat Sightings by Borough (2022 vs 2025)

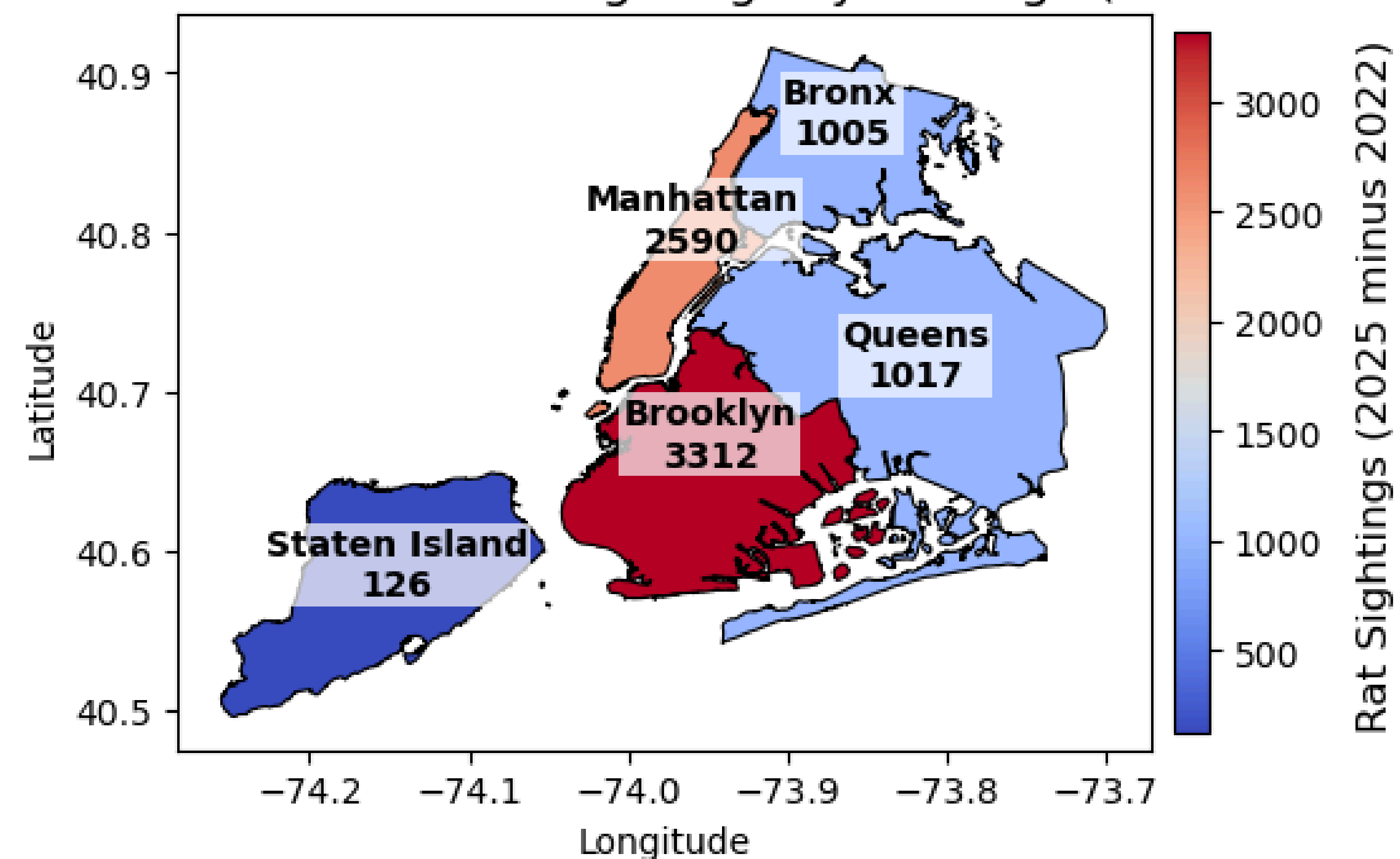


Figure 2

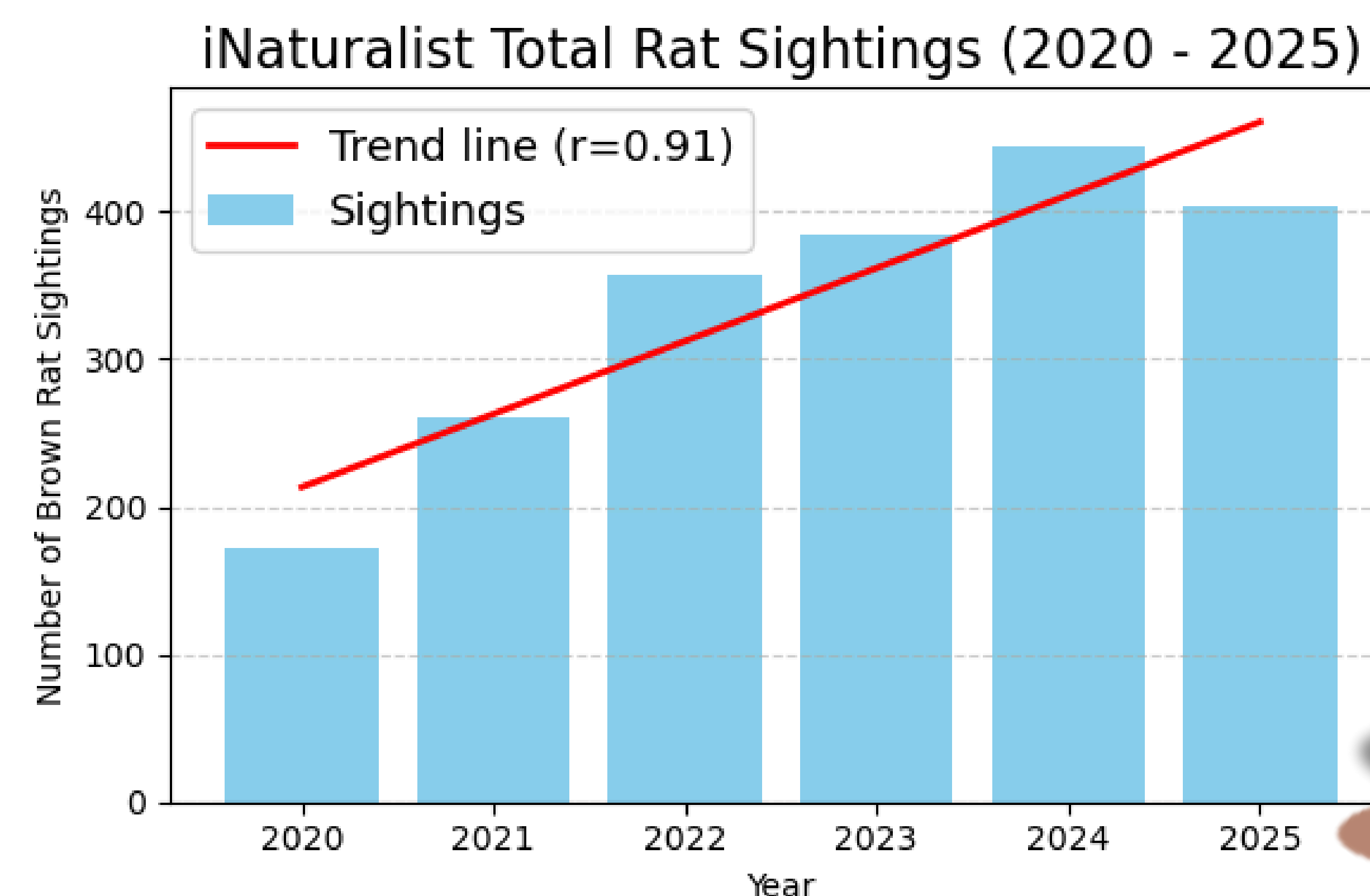


Figure 3

## DISCUSSION

- According to Figure 1, there has been an **overall decrease** in rat sightings, peaking at **~28,000** rat sightings in 2022 and dropping to under **20,000**. This suggests a **~30% decrease** in rat sightings.
- The trend line is increasing because of a drop in sightings from 2020 to 2021 caused by **quarantine** that kept citizens indoors. Based on the trend, the true quantity of rats would’ve been slightly lower than 2021’s numbers.
- The data in Figure 1 is supported by Figure 2 which shows the **decrease** in rat sightings between 2022 and up to Oct 2025.
- Generally, the most **population dense** boroughs had the **most sightings** and subsequently experienced a **greater decrease** after the rat control initiatives.
- $r = 0.16$  for Figure 1 and  $r = 0.91$  for Figure 3

## CONCLUSIONS

- The initial hypothesis was incorrect. NYC initiatives have been **very successful** in curbing the brown rat population.
- Over time, the number of rats spotted has dropped by **~30%**, proving that the initiatives had a **significant role** in lowering the rat population.
- As for limitations, there is a **lack of data** on the **exact number** of the rat population, our data only goes up to **October 2025**, and there is a possibility that the same rat can be spotted multiple times.
- These findings show that the “war” against rat infestation **isn’t totally lost**. They also prove that these initiatives could possibly be used in other **rat-infested cities**.
- For future research, it would be beneficial to research initiatives taken against other **pest populations** in NYC (ie. roaches, bed bugs, etc).