# Exploring the Pooper Scooper Law: NYC Parks Open Data

2018 marked the 40th anniversary of the Pooper Scooper law which made it illegal to not pick up after your dog. According to Michael Brandow, author of *New York's Poop Scoop Law: Dogs, the Dirt, and Due Process,* the law had been passed to clean up city neighborhoods: if there was less dog poop on the streets, more New Yorkers would clean up after their dogs, and so forth.

The NYC Department of Parks and Recreation celebrated the 40th anniversary of the law with an $86,000 project: installing 1000 waste bag dispensers to incentivize dog walkers to pick up after their dogs. According to the press release, they placed the dispensers in parks where there were regularly high amounts of animal waste left behind.

Distribution of Waste Bag Dispensers by Borough
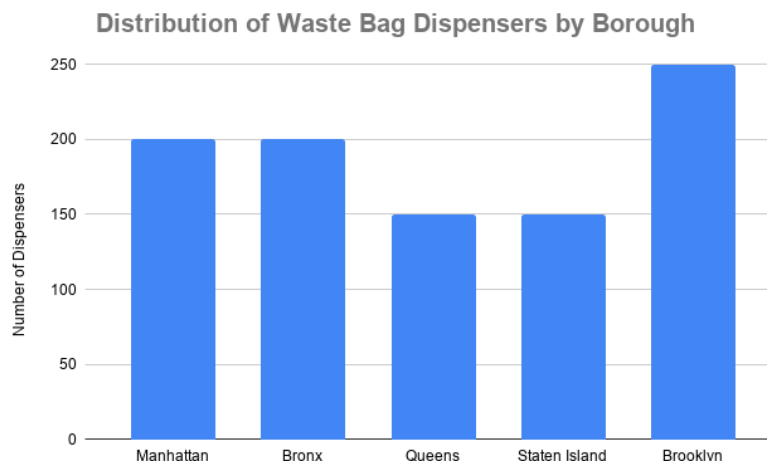
Since the goal of the Parks Department's initiative was "to decrease [the amount] of dog feces left behind," it would be interesting to explore the frequency of animal waste pickup before and after August 1, 2018, the day the dispensers were rolled out.

To do this, we can look at the Daily Tasks Park Cleaning Records on the NYC Open Data portal. The dataset contains over 4.5 million records from 2015 to date with information about the routes taken by the parks cleaning crew each day. On each stop on a route, data is collected about the park property ID, the date, the number of hours spent cleaning, as well whether or not the following items were cleaned: animal waste, graffiti, broken glass, and medical waste.

The first way that we could understand whether the waste bag dispensers decreased the amount of animal waste left behind is to look at the total count of occurrences of animal waste by date. To do this, we can loop through the dataset by date and sum the amount of times animal waste was encountered by all cleaning crews on that given day. Here is a snapshot of what that data would look like:

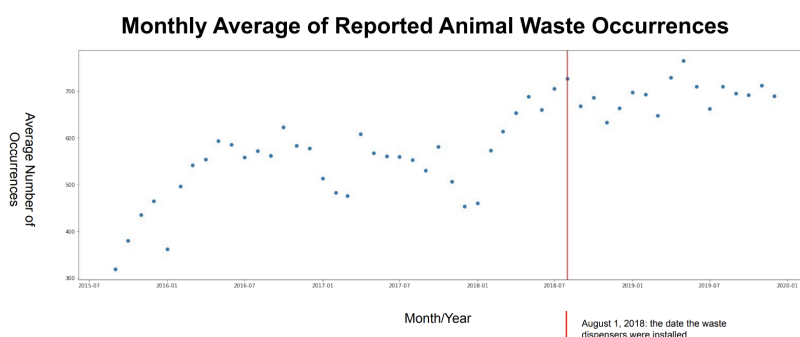| animal_waste	broken_glass	graffiti	date
74	100	11	2015-09-03
134	178	15	2015-09-04
277	345	41	2015-09-05
301	390	35	2015-09-06
338	365	42	2015-09-07
308	362	30	2015-09-08
334	374	55	2015-09-09
363	416	26	2015-09-10
346	362	34	2015-09-11
348	371	45	2015-09-12

Counts of occurrences of animal waste, broken glass, and graffiti by date

Using this aggregated data, we can construct a time series to visualize the daily number of animal waste occurrences.

Daily Number of Reported Animal Waste Occurrences

Number of Occurrences

Date

August 1, 2018: the date the waste dispensers were installed
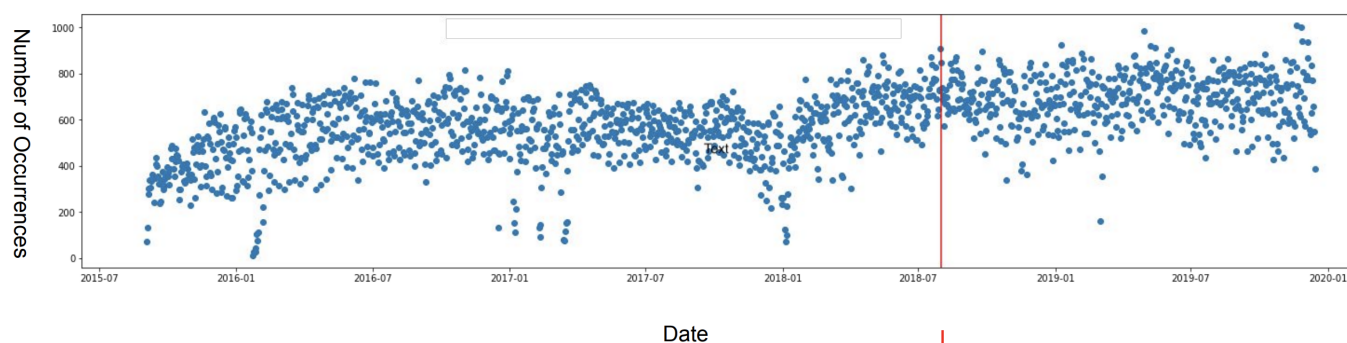
Hmmmm…at first glance, it does not appear that there is any difference in the frequency of animal waste left behind. Let's take a closer look by plotting the monthly average of occurrences.

Monthly Average of Reported Animal Waste Occurrences

Average Number of Occurrences

Month/Year

August 1, 2018: the date the waste dispensers were installed

Again, there doesn't appear to be any change in the frequency of animal waste being left behind. The reason for inconclusive results might be that we are counting occurrences that animal waste is left behind, rather than the quantity. The way the data is collected in the open dataset is a simple yes or no of whether the cleaning crew cleaned up animal waste on that particular day on that particular route. Perhaps, if we had the dimension of quantity, we would see that although the occurrences of animal waste did not decrease, the quantity of animal waste left behind did. Additionally, some of the data is double counted in the dataset. For instance, two different properties

{{ If I were to have more time to complete this coding challenge, I would contact the NYC Parks and Recreation Department to get the names of which parks installed waste bag dispensers. I would do a

closer analysis on those parks to see whether the dispenser initiative improved the frequency of animal waste left behind in those specific parks. Depending on the number of parks, I would visualize this data with a slope chart indicating 3 dates: August 1, 2017 to August 1, 2018, to August 1, 2019. }}

Though we were not able to answer whether the waste bag dispenser initiative had an impact on animal waste left behind, there might be some more insight we can glean from this data. For starters, we might want to explore whether there is a day of the week where there is a greater frequency of animal waste. To do this, we can separate the number of occurrences by day of the week they occurred.

Occurrences of Animal Waste By Day of the Week
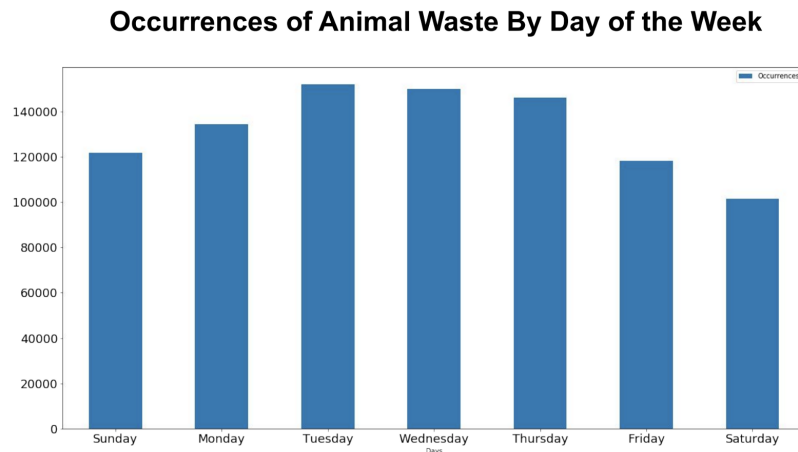
Renthop recently did a study analyzing complaints made to 311 about dog poop. They focused on the number of complaints made, analyzing the number per neighborhood, per day of the week, and other dimensions. Let's take a look at their breakdown of animal waste complaints by day of the week.
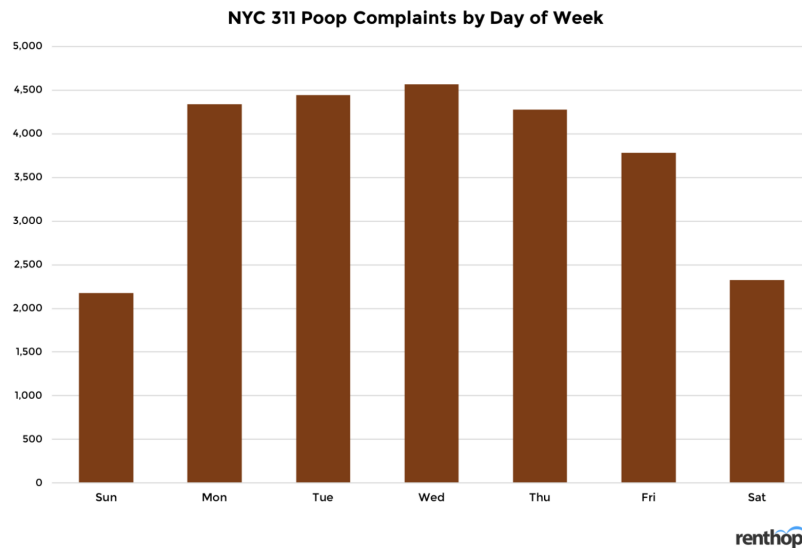
NYC 311 Poop Complaints by Day of Week

Image from Renthop

Comparing both day of the week charts, we can see that weekends tend to have less complaints about animal waste and lower occurrences of it. Perhaps this is because more people tend to walk their dogs on the weekends, so there is a lower chance one can "get away" with not picking up after their dogs.

Though we were not able to answer our intended question about whether the waste bag dispenser initiative was effective in reducing animal waste, this open dataset has many opportunities for insight, especially when combined with other public datasets from NYC Open Data. Some future explorations could include:

- examining the correlation between amount of private funding a park receives and the number of occurrences of animal waste

- exploring other park tasks such as cleaning graffiti or medical waste

- seeing whether there is a pattern of increased cleaning of broken glass around holidays

- calculating cleaning costs per park using payroll information and number of hours spent cleaning

- predicting the cleaning cost/acreage of a park given its amenities

- calculating the number of animal waste occurrences by neighborhood to explore the correlation between average price of rent in that area and the occurrence of animal waste

Get started with exploring your own trends in Parks' data on the NYC Open Data portal!