

Geographic Data Science

Point Patterns

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The *point* of points

Points like polygons

Points *can* represent “fixed” entities

In this case, points are qualitatively similar to polygons/lines

The goal here is, taking location fixed, to model other aspects of the data

Points like polygons

Examples:

- Cities (in most cases)
- Buildings
- Polygons represented as their centroid
- ...

When points are not polygons

Point data are not only a different geometry than polygons or lines...

... Points can also represent a fundamentally different way to approach spatial analysis

Points unlike polygons

A few examples...

Crime Types

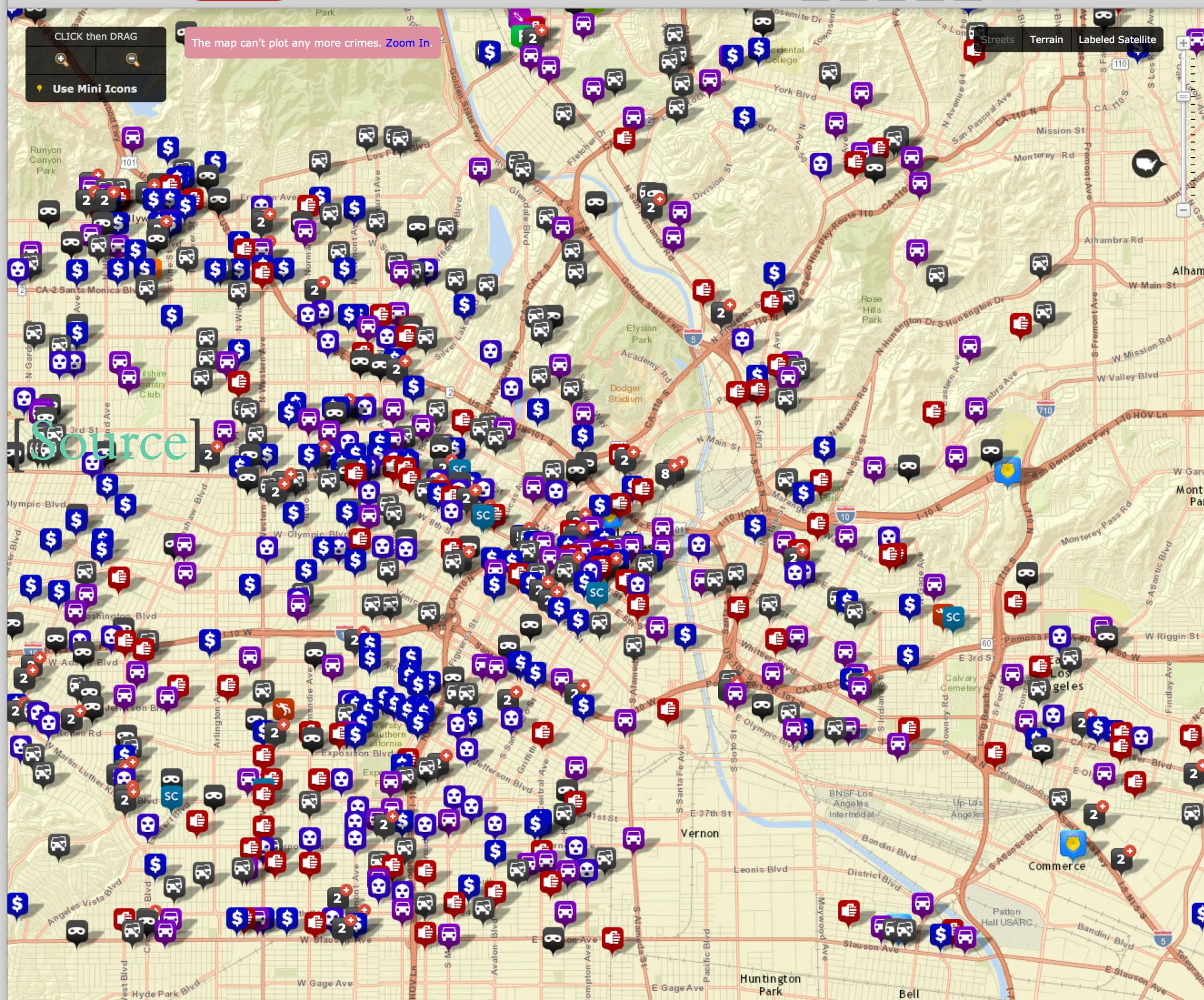
Dates

Address

Agencies

+800 crimes

between 11/11/2015 - 11/17/2015

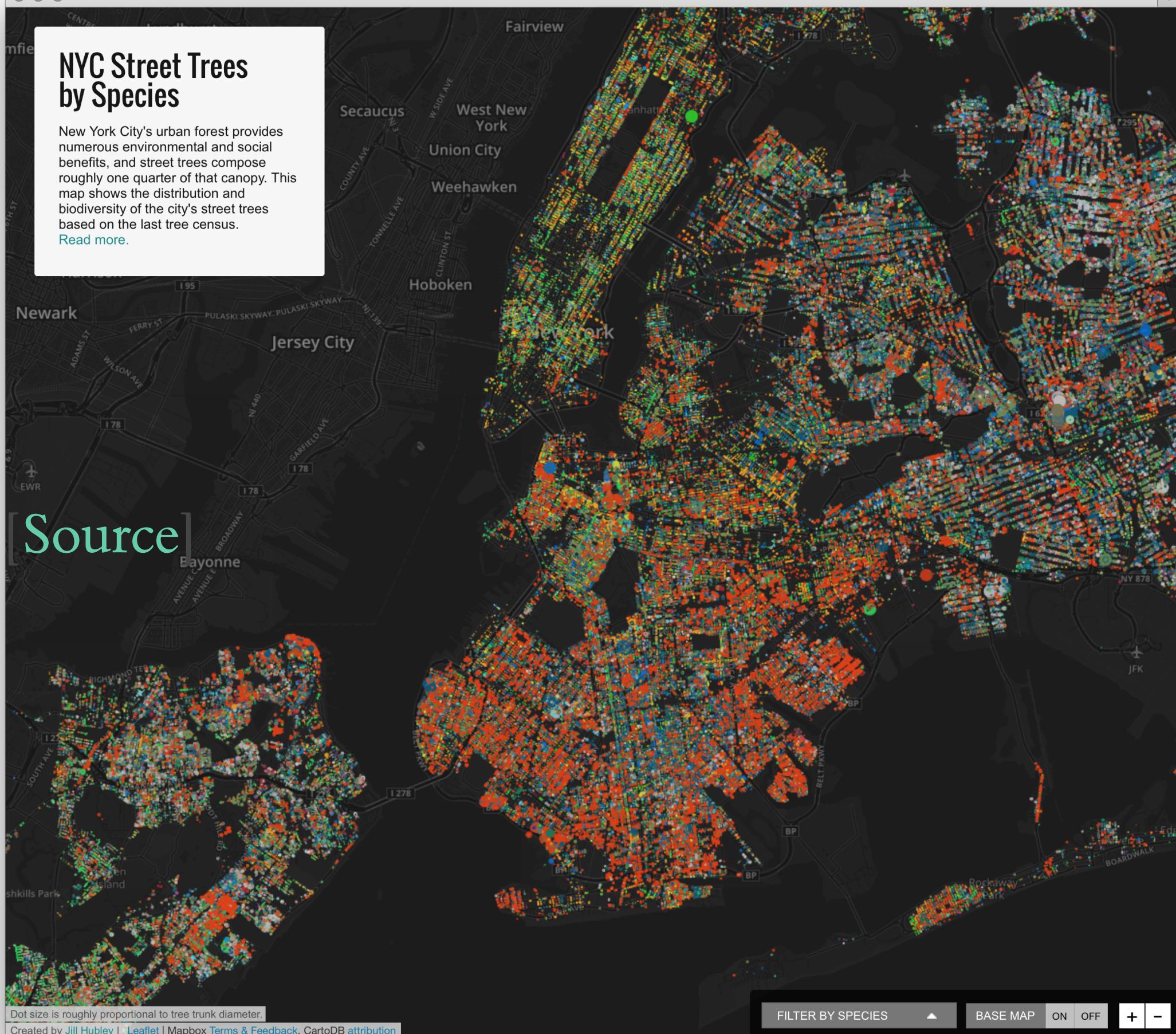


NYC Street Trees by Species

New York City's urban forest provides numerous environmental and social benefits, and street trees compose roughly one quarter of that canopy. This map shows the distribution and biodiversity of the city's street trees based on the last tree census.

[Read more.](#)

[Source]



Geo-tagged tweets

{"message":"Classic styles are no longer supported; see <https://blog.mapbox.com/deprecating-studio-classic-styles-d8892ac38cb4> for more information"}

Point patterns

Point patterns

Distribution of points over a portion of space

Assumption is a point can happen anywhere on that space, but only happens in specific locations

- Unmarked: locations only
- Marked: values attached to each point

Point Pattern Analysis

Describe, characterize, and explain point patterns,
focusing on their generating process

- Visual exploration
- *Clustering* properties and clusters
- Statistical modeling of the underlying processes



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