Search process

Officer’s options: \{no search, Asian search, Black search, White search\}

Multinomial logit:

$$\log \frac{P(y = \text{Black})}{P(y = \text{no search})} = X_{\text{area, officer}} \beta$$
The problem

We never have the counterfactual of “officer in an area but no search”

An idea: we could use other data as approximation

↓ example: traffic accidents

↓ officer was at least in the area

But that data is spatially biased!
A solution: Officers are koalas

De-bias input data using spatial Log Gaussian-Cox process predictions (Renner et al., 2015)

1. take biased input
2. specify sources of bias
3. adjust and predict
Now what?

1. Predictions as counterfactual

   → adjusted for over- and under-counting bias

2. We use that as input in our model of interest

\[
\log \frac{P(y = \text{Black})}{P(y)} = X_{\text{area, officer}} \beta
\]
Why bother?
Wrapping up

- A new methodology to understand decisions with a spatial attribute
- from spatially biased approximations to counterfactuals

\[ \log \frac{P(y = \text{Black})}{P(y = \text{Other})} = X_{\text{area, officer} \beta} \]

- provides a window into a decision-making black box