

Game Birds & the Landscape of Fear:

The effect of human disturbance on
Canada goose (*Branta canadensis*)
habitat selection

Karen Beatty

Acknowledgements:



Dr. Franny Buderman
Quantitative Wildlife Ecology Lab



Pennsylvania Game
Commission



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How do animals choose where to go?

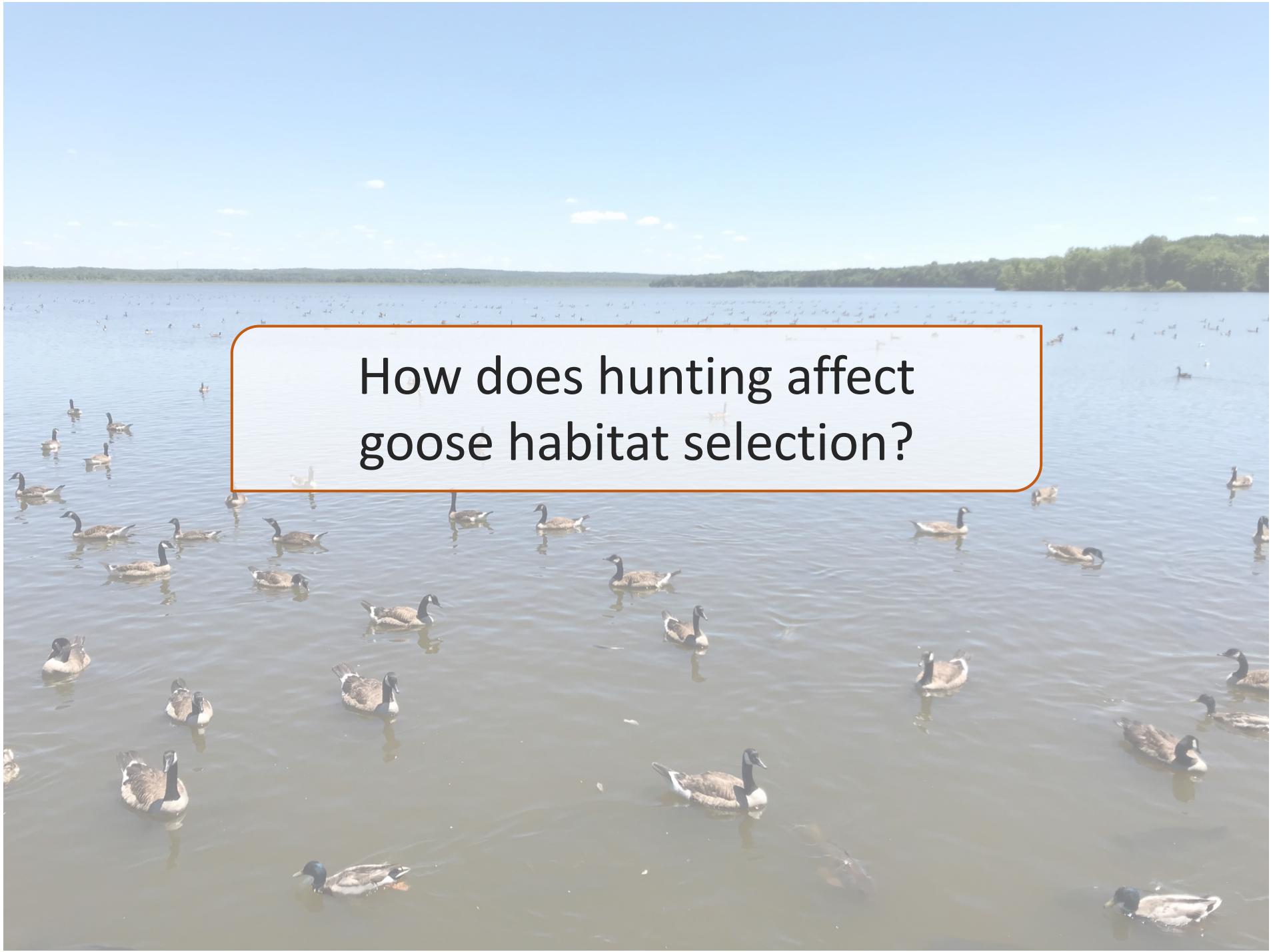


Using areas that support survival and reproduction

Landscape of Fear

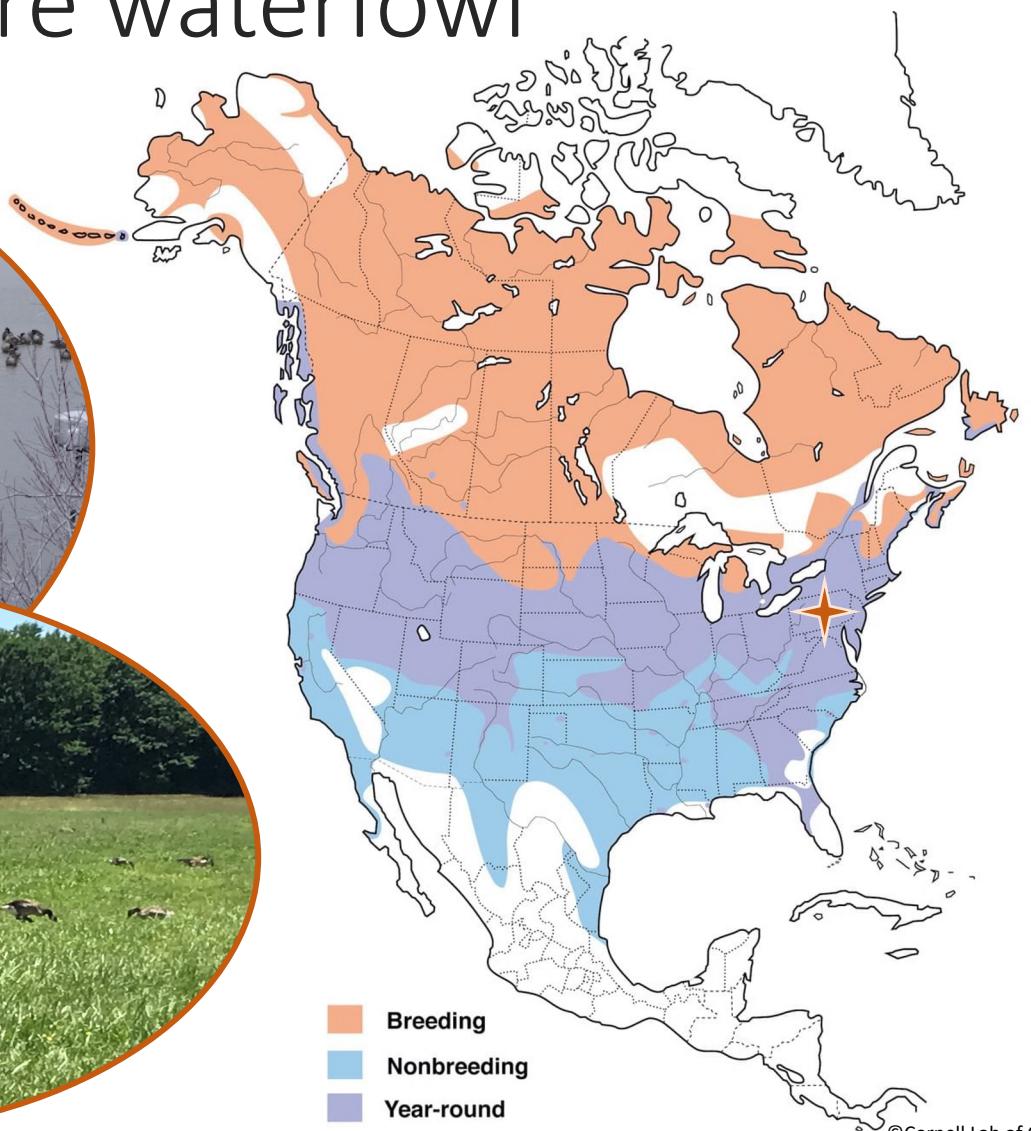
Cognitive map of perceived predation risk

Boyce & McDonald, 1999
Matthiopoulos et al, 2020

A wide-angle photograph of a large body of water, likely a lake or river, filled with numerous geese. The water is a mottled brownish-green color. In the background, a dense forest line is visible across the horizon under a bright, clear blue sky with a few wispy clouds.

How does hunting affect
goose habitat selection?

Canada geese are waterfowl

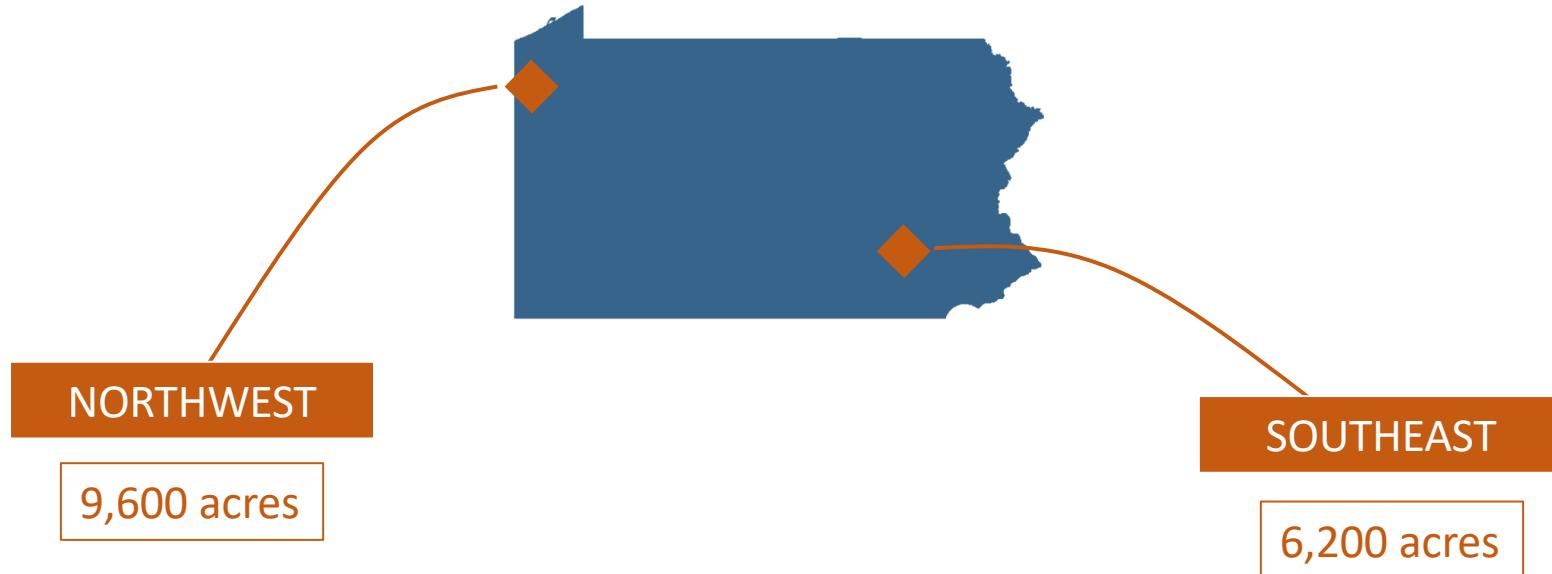


Breeding
Nonbreeding
Year-round

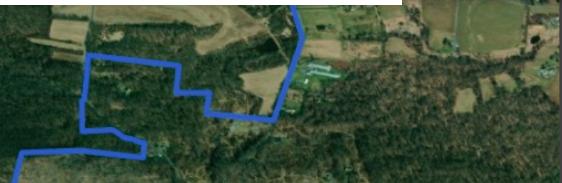
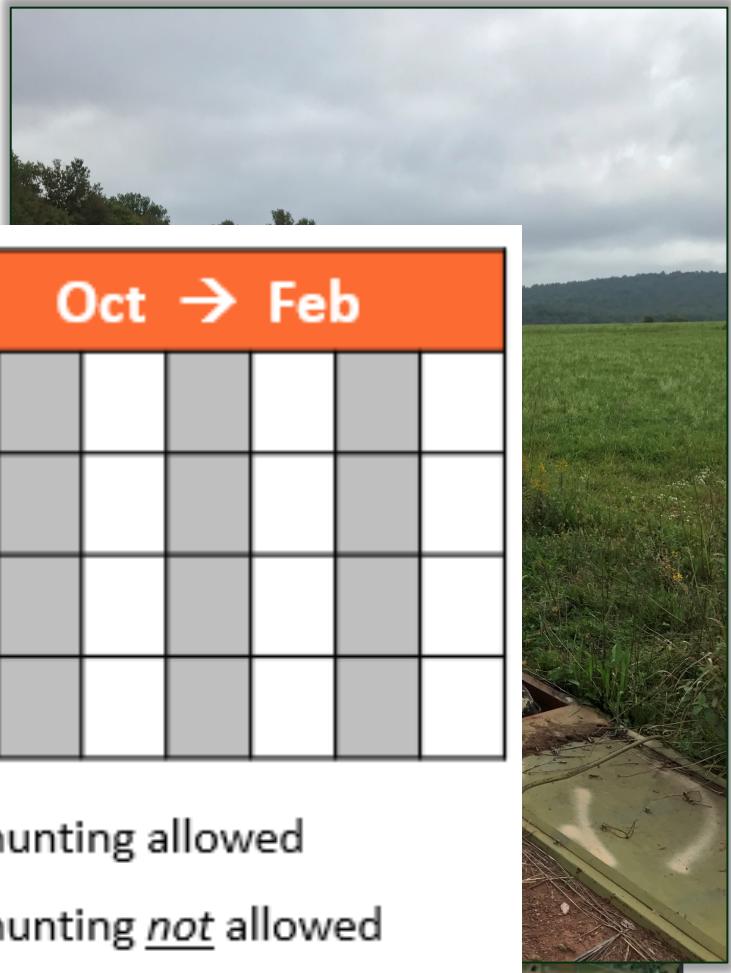
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2 study sites



Hunting occurs from stationary locations on specific days

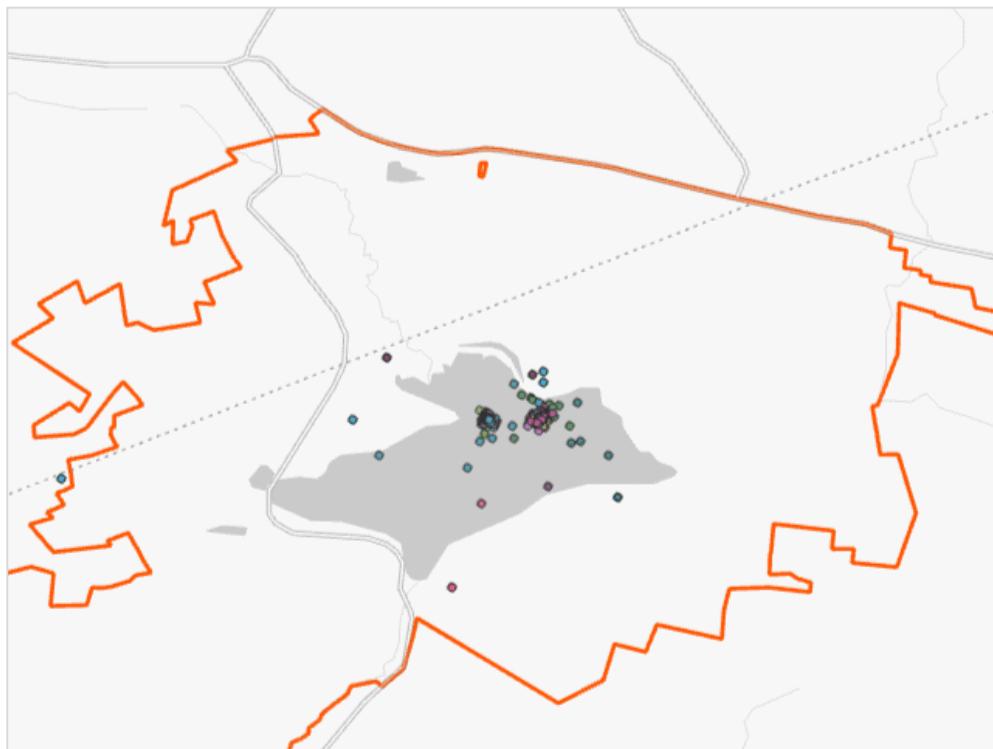


Fitted geese with GPS collars to track their locations



Collected data
for 2 years

every 10 minutes



138
individuals
+
27,000
observations
per bird
=

3,700,000
data points

Resource Selection Function

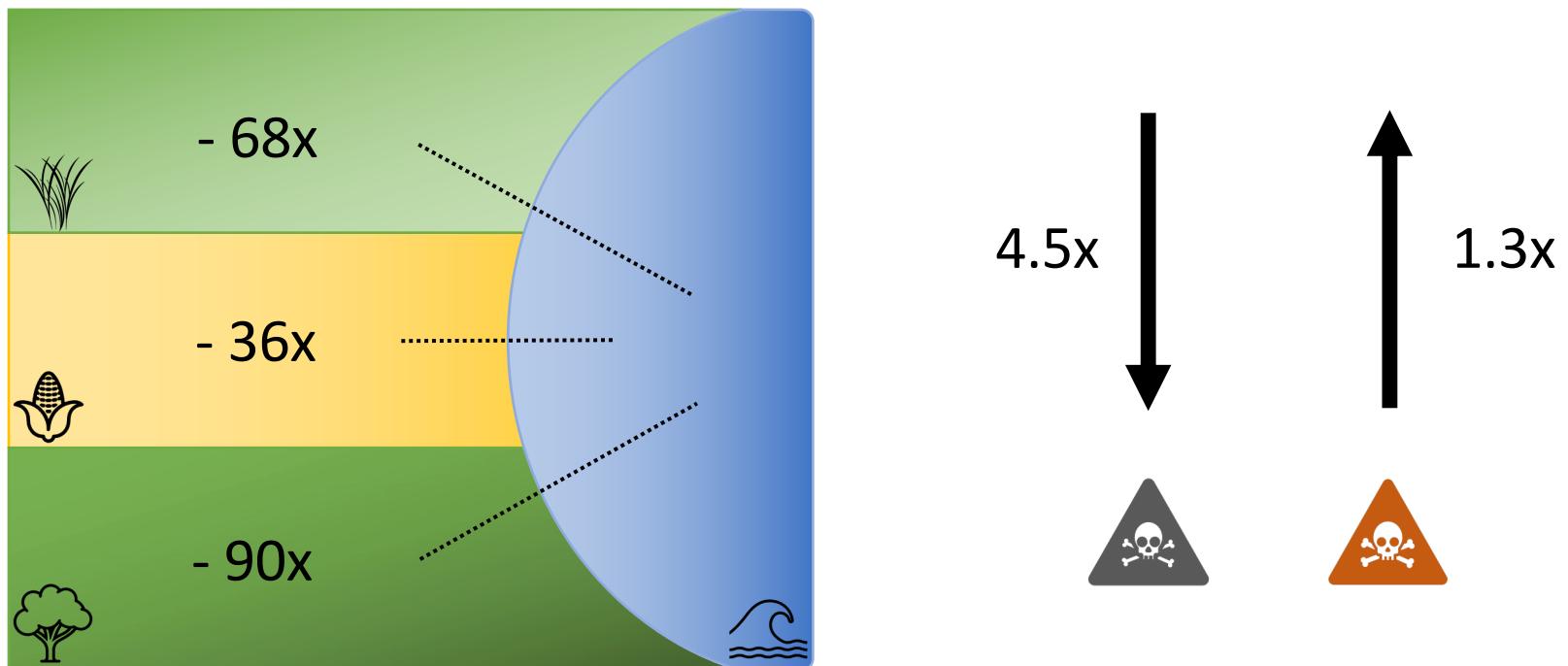
→ logistic regression model

- Habitat type
- Hunting activity:
 - Hunting day
 - Number of hunters
 - Distance to hunting blind



Manly et al, 2002

Geese are primarily driven by proximity to water



How does hunting affect goose habitat selection?

Landscape of Fear

Geese responded to perceived predation risk

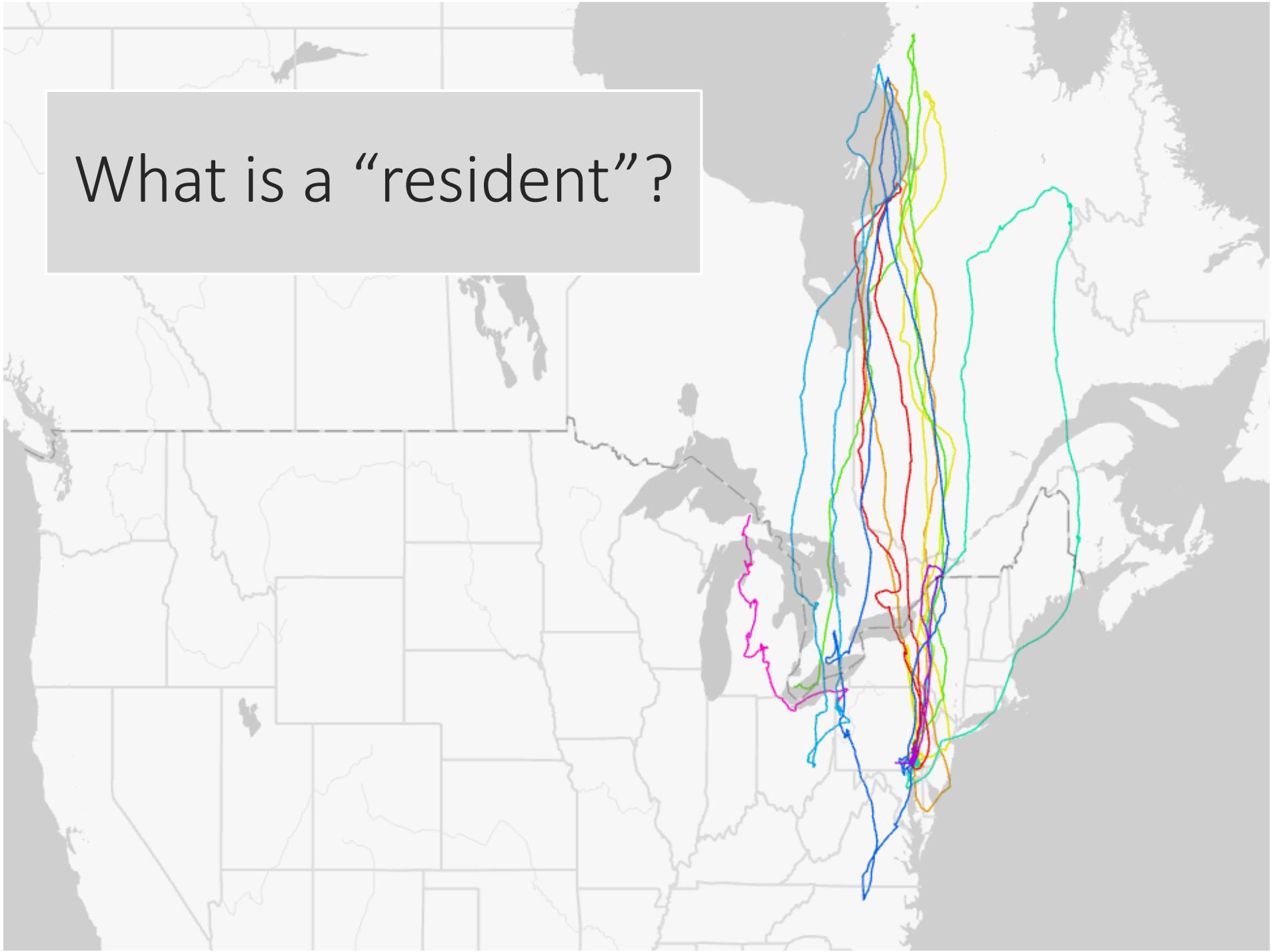
- *but it wasn't the strongest influence*

Water is the primary motivation for these birds, but hunting is mostly terrestrial, so the effects are relatively small

Other Analyses

Movement analysis

- Hidden Markov models to estimate behavioral transitions



What is a “resident”?



Learn more about
my research:



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