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Swainson's Hawk

# VARIATION IN RAPTOR ABUNDANCE BETWEEN URBAN AND RURAL HABITATS

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Lanier  
UW at Casper

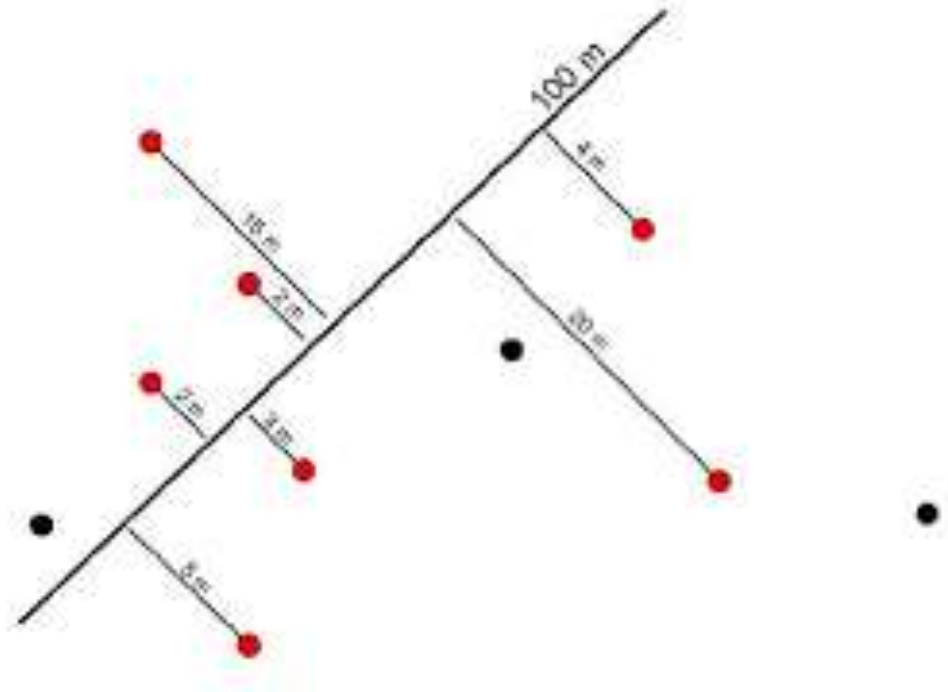
# Raptors Found Near Casper WY



# URBAN VS RURAL BIRDS



# How Do We Study the Abundance of Raptors?

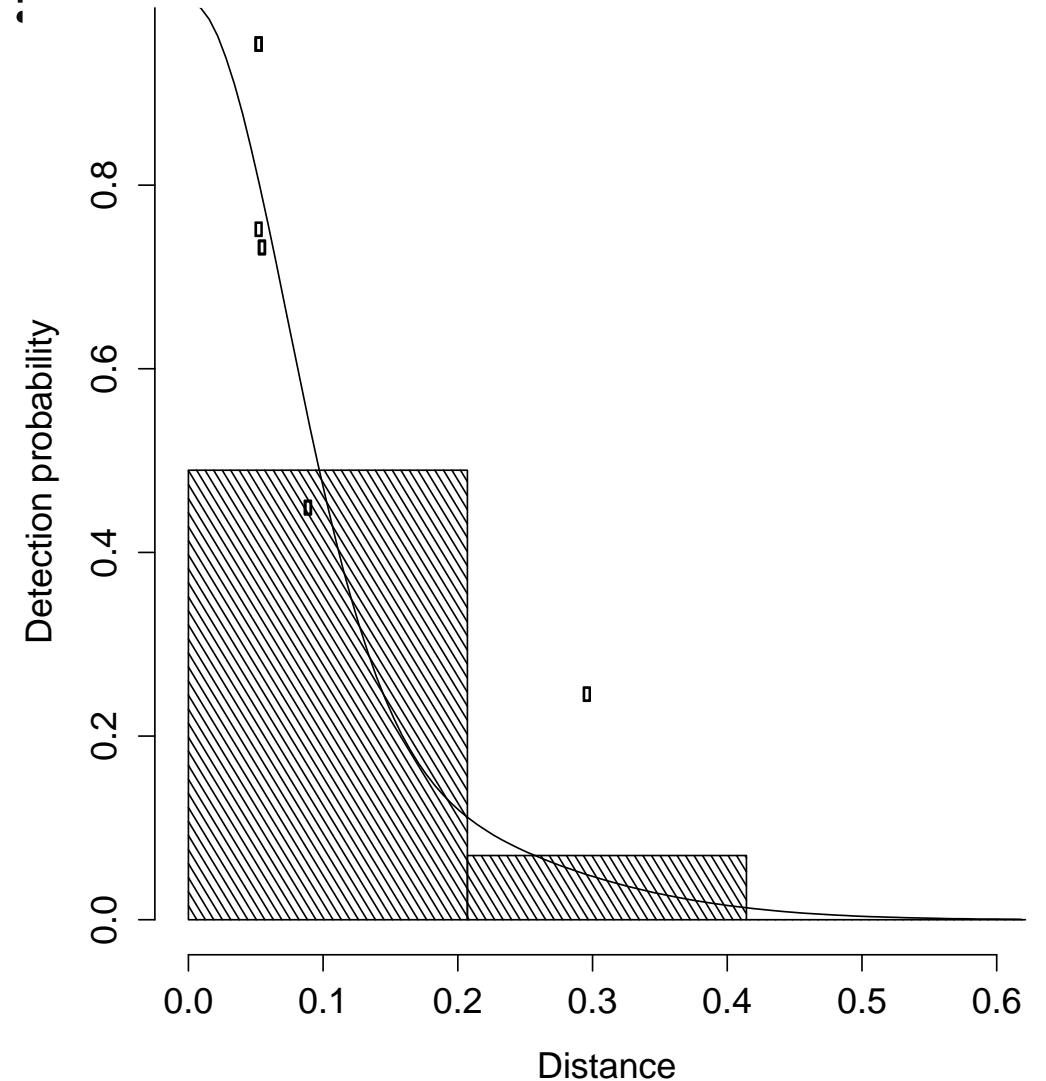


# WHAT IS DISTANCE SAMPLING?

A method of collecting population densities by compensating for the fact that people prefer to look for objects straight ahead and nearby.

Requires 2-3 people for car surveys

Great for whale and bird surveys





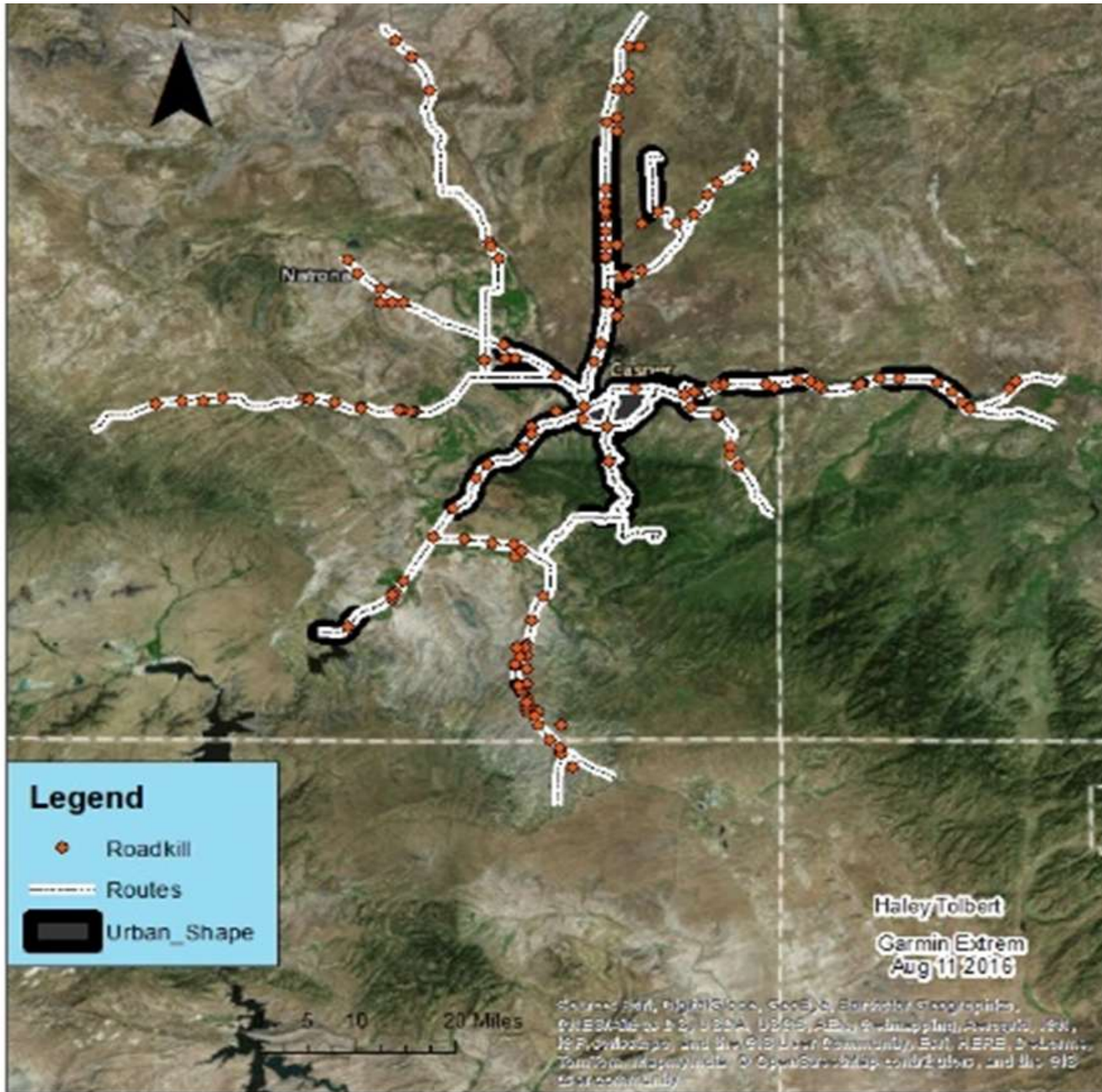
# How to Establish Prey Base?

Urban



Rural





# ROADKILL

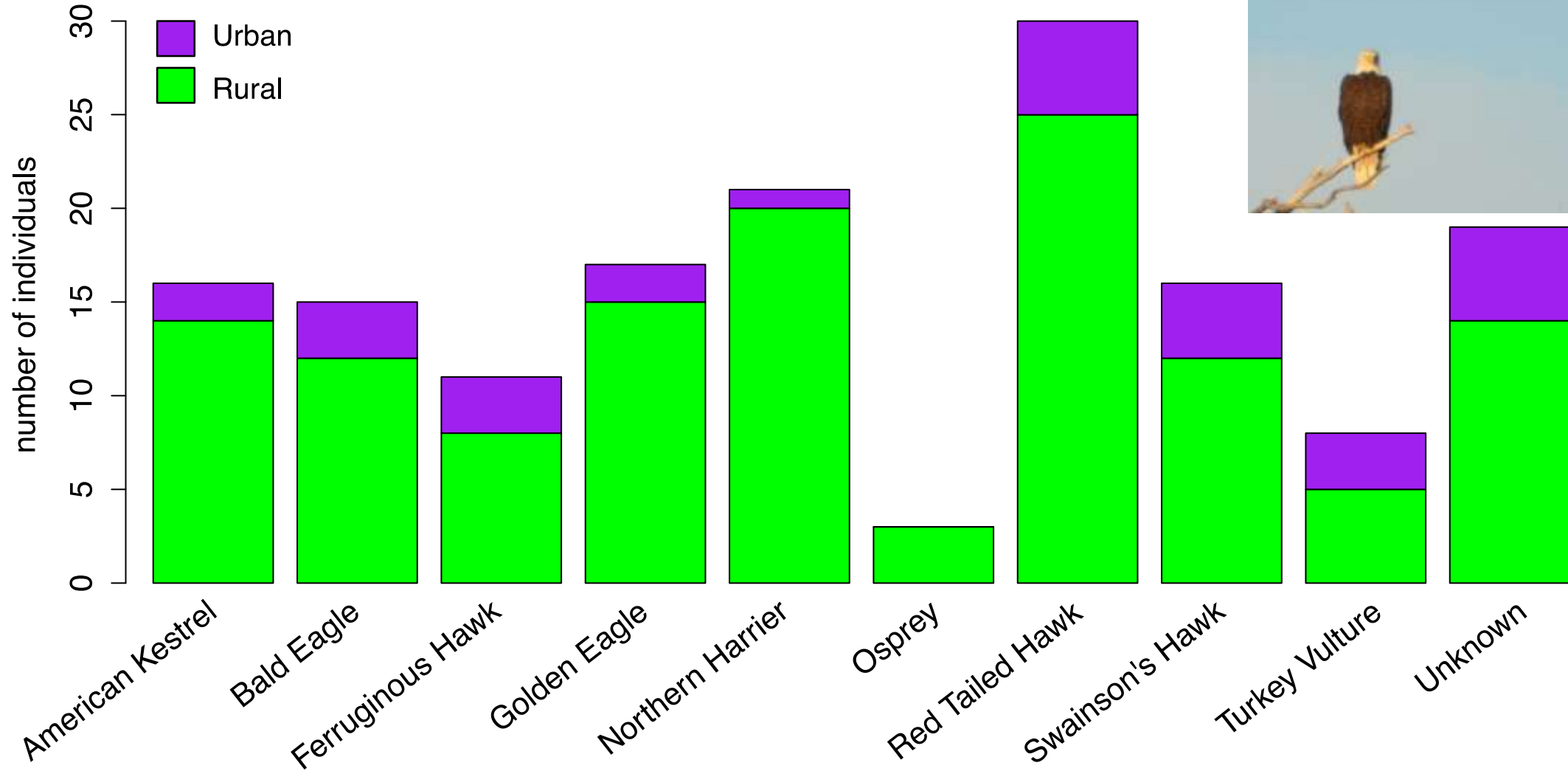
- Proxy for prey base
- Collected data on over 200 roadkill (mostly rabbits)



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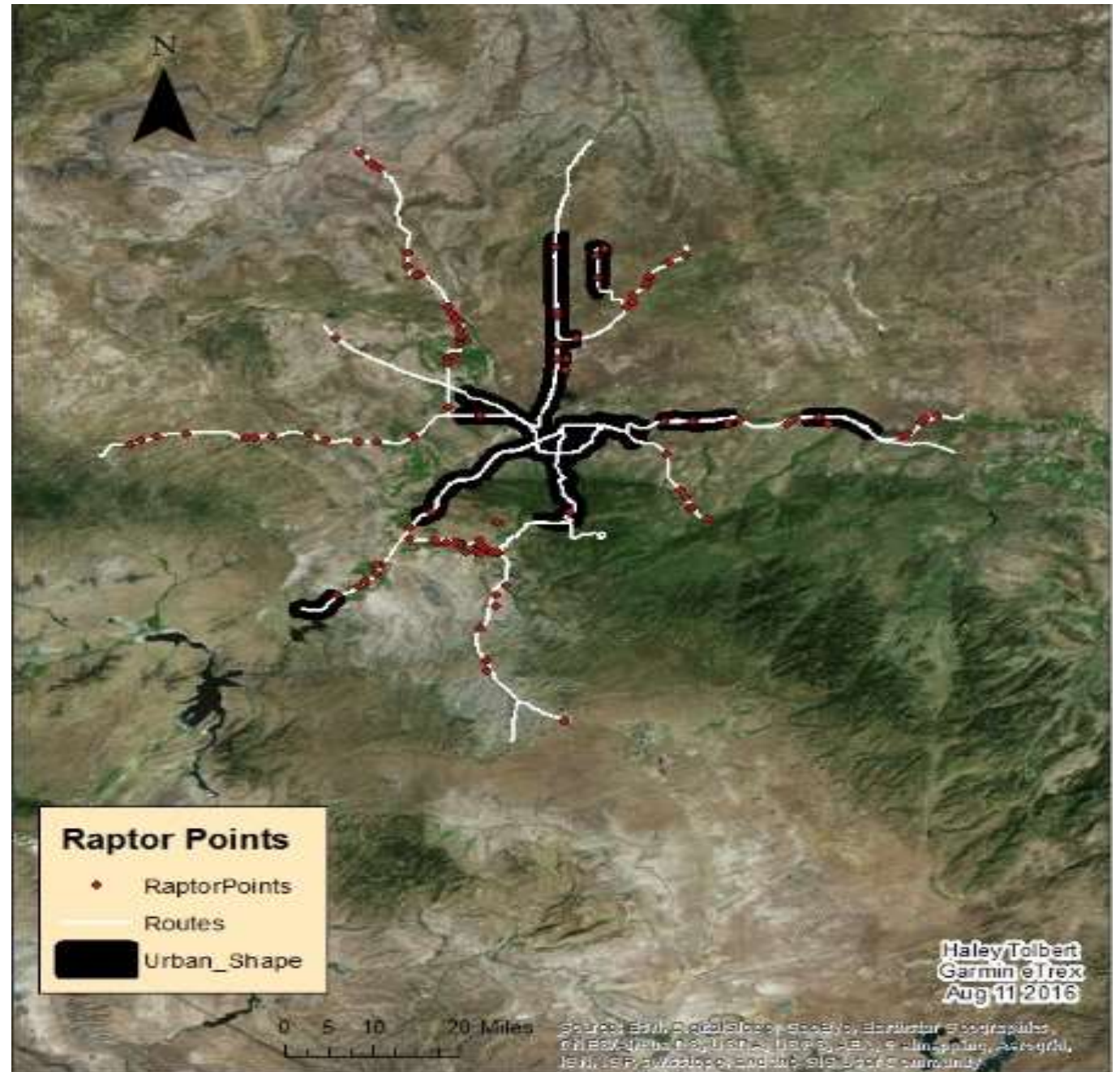
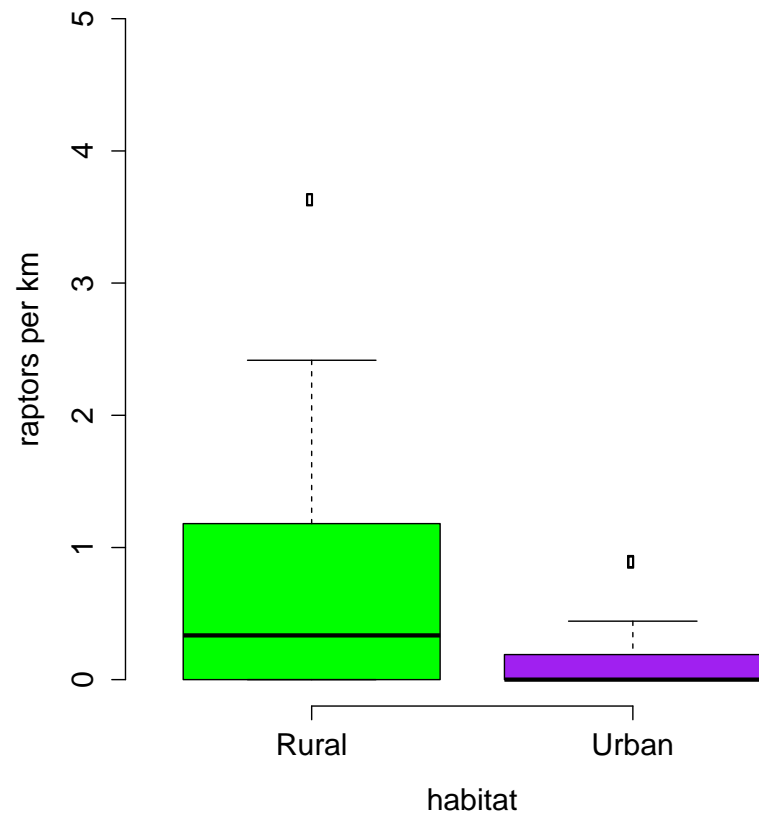
# RESULTS





# RAPTORS

- Collected data on 113 birds
- Only counted if found during surveys
- Adults and flying juveniles



# DOES URBANIZATION IMPACT RAPTORS?

Yes. By using distance sampling models we discovered.....

1) Urban and rural habitat are best modeled separately (AIC model comparison)

2) Raptor abundance differs by habitat

2.0 raptors for every km<sup>2</sup> in rural

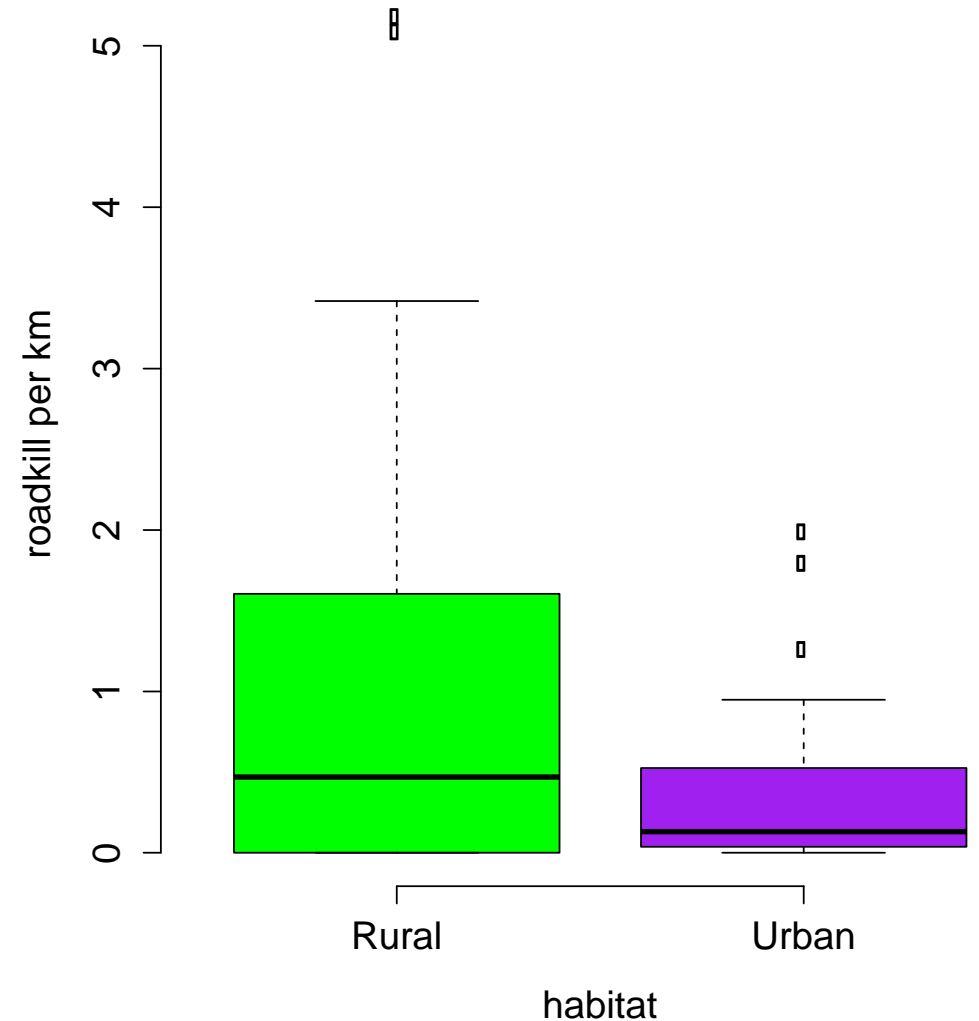
0.7 raptors for every km<sup>2</sup> in urban



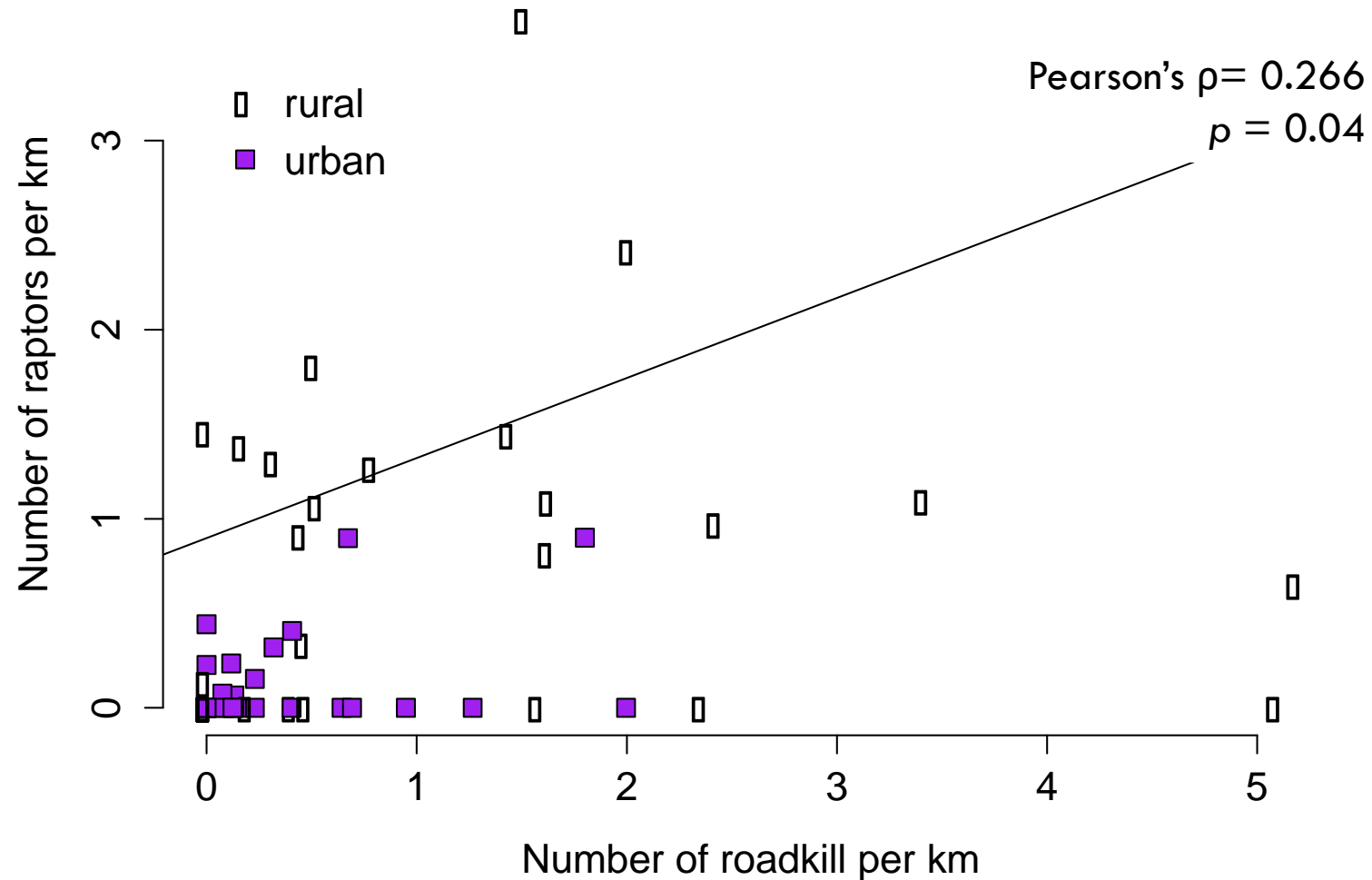
# DOES RAPTOR ABUNDANCE REFLECT PREY BASE?

1.0 Roadkill for every km<sup>2</sup> in rural

0.4 Roadkill for every km<sup>2</sup> in urban



# DOES RAPTOR ABUNDANCE REFLECT PREY BASE?



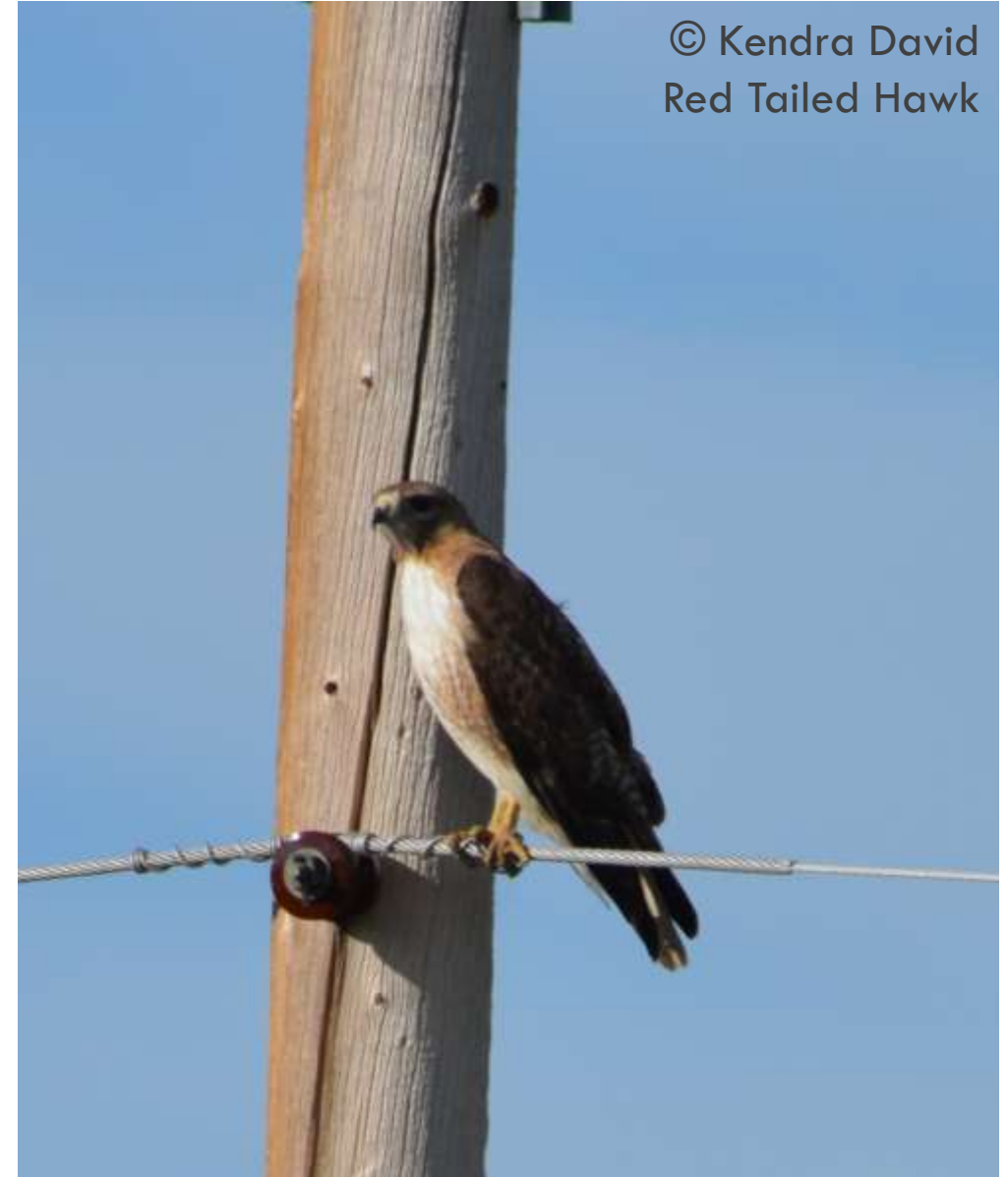


# DISCUSSION

Raptors are more than 2X as abundant in rural habitats compared to urban environments.

Prey abundance is also higher in rural areas, and positively correlated with raptors.

If raptors are sensitive to urbanization, this may have broad implications.



# ACKNOWLEDGEMENTS

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To survey volunteers: Kendra David, Laura Diesburg, Lorraine Carver, Katie McClintock, and Lana Downey

Another thanks to Kendra David for photos and to Lorraine Carver for ArcGIS and Rstudio programming assistance.

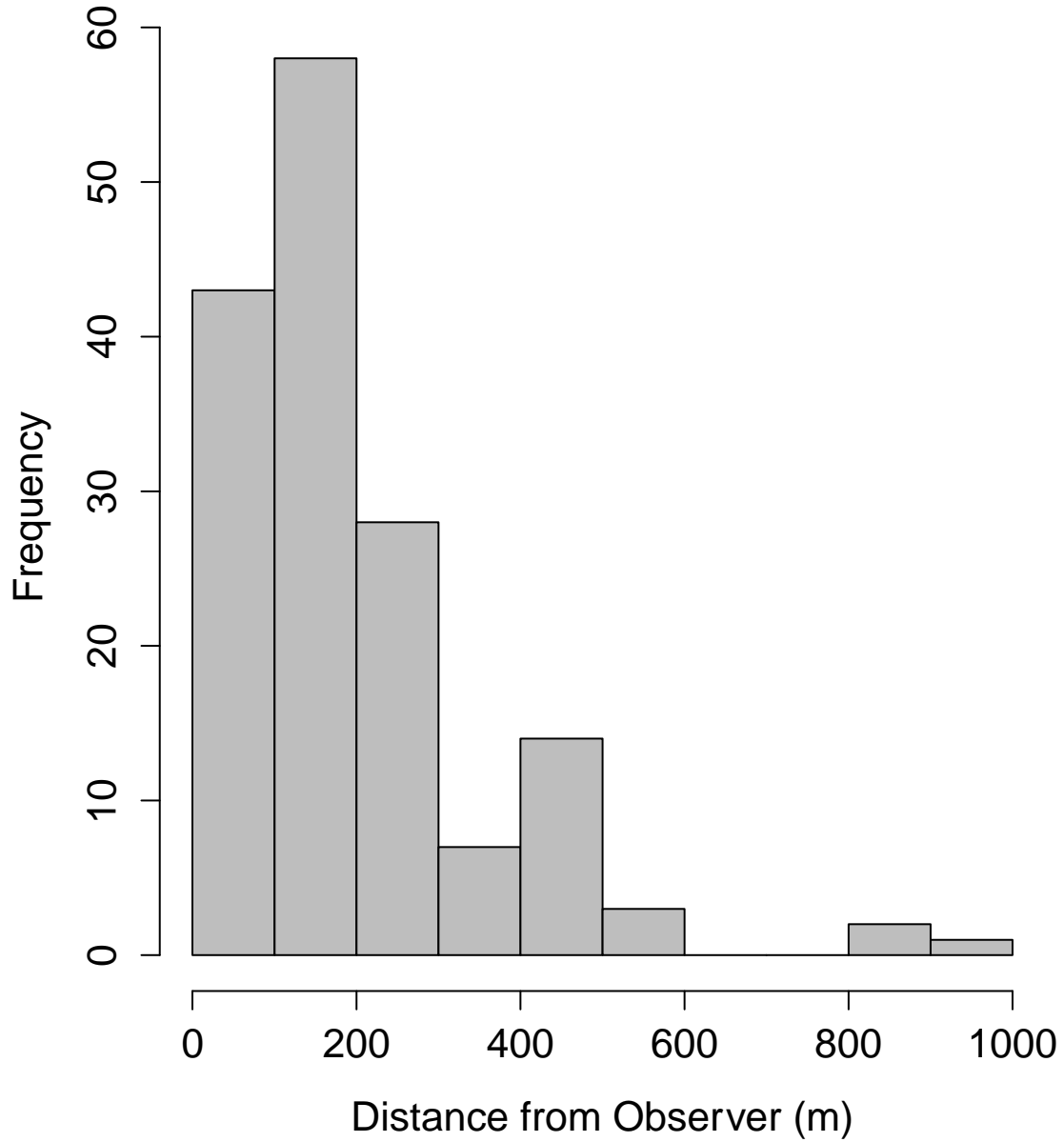
Thanks to Issac Anderson, Lewis Hein, Luke Baker, and Laura Diesburg for feed back and support.

The End

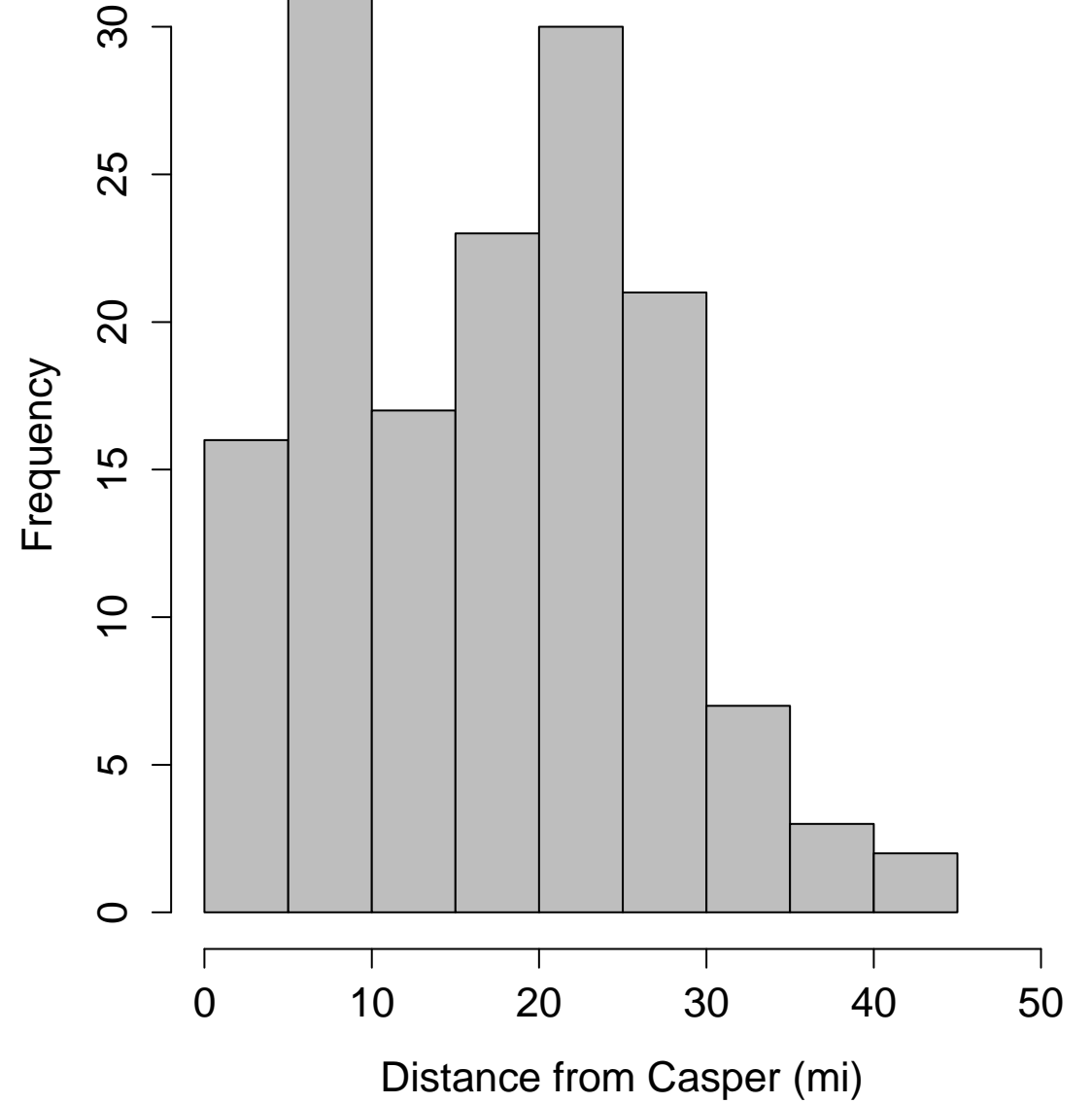


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American Kestrel

### Raptor Observations



### Raptor Observations





# INDIVIDUAL BIRDS SPOTTED

