

Research questions

- Does urbanization affect the expression of neophobia in Northern Cardinals?
- If so, what are the effects of urbanization on neophobia in Northern Cardinals when observing/discussing flight initiation distance (boldness) and latency?

Introduction

Big picture

- Urbanization, the shift from the previously natural environments to those of towns and cities, has caused many environmental changes. While it greatly benefits humans, the loss of these natural spaces and the rapid influx of human activity in different areas around the world has had an impact on the species who are now living in these environments filled with people and technology.

Why cardinals?

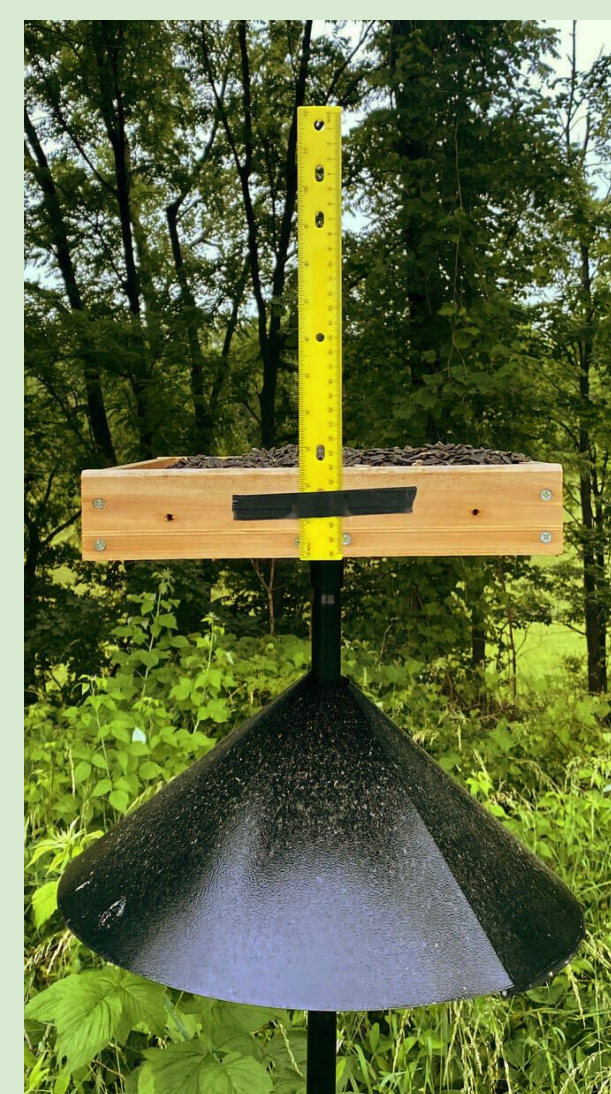
- Local presence in both rural and urban areas
- Wide availability
- Easy to locate multiple individuals and territories

Goals

- Examine the impact environment has on behavior toward novel objects
- Observe the differences in neophobia between rural and urban populations

Methods

- May to Late July, at Rice Creek Field Station, and Barry Park in Syracuse, ten feeders were put at each location.
- Five trials were conducted in a random order at each feeder (Novel object vs none). Measuring the amount of time it took for the bird to leave when approached (Flight initiation distance) and to return (Latency).
- Analysis: First: linear model, Next: tukey tests
 - Linear model: latency = response, site, object, and interaction = predictors.
 - Tukey tests: used to determine differing groups (AA vs AB)



Results

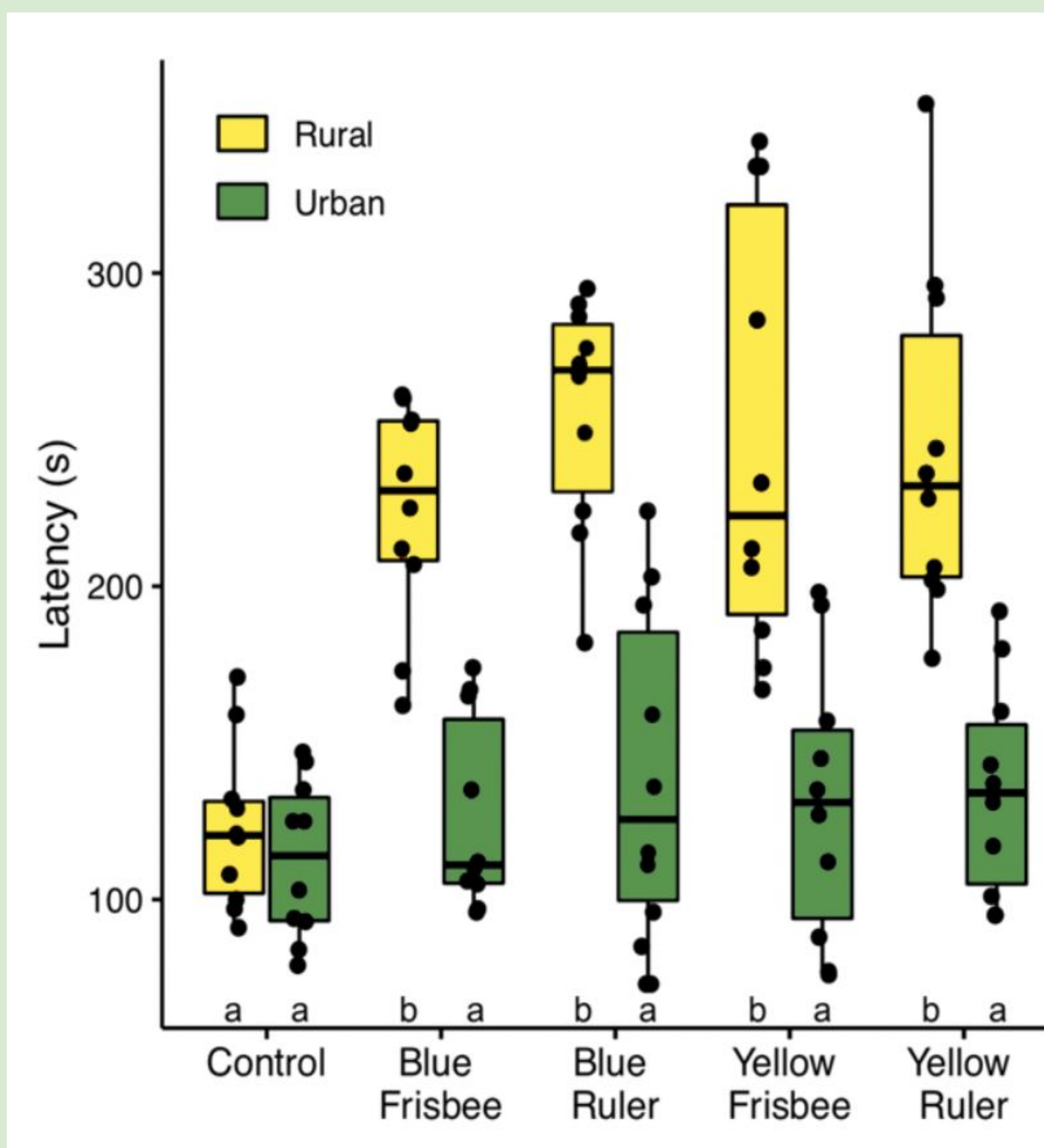
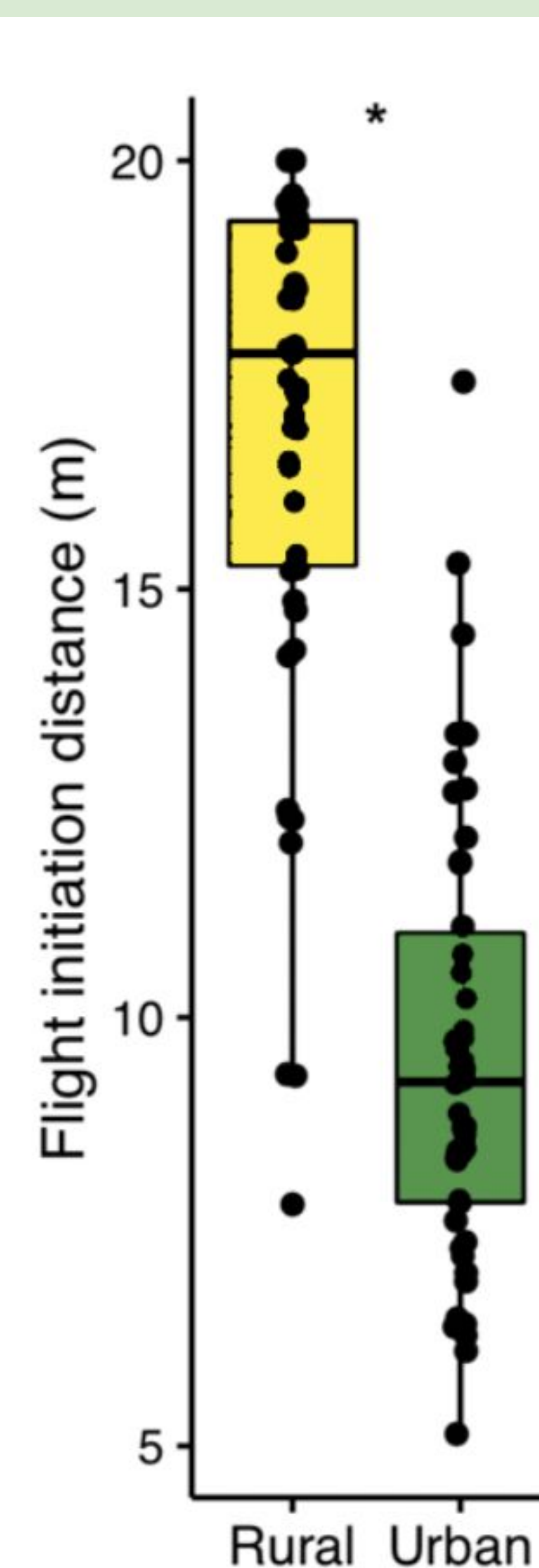
- The rural birds had a longer flight initiation distance when compared to the urban birds, suggesting more boldness.
- Latency depended on the site, the trial and an interaction between them.
 - There was no difference between rural and urban birds in latency during the control trial.

Rural latency

- Significantly longer than urban latency
- Latency in regards to any of the four objects = longer than the control

Urban latency

- No difference in latency among any of the trials (same with rural latency)
- Very close to control time when compared to the rural trials



Conclusions

- Urbanization = a factor of the expression of neophobia in Cardinals
- Increased interactions with novel objects by urban birds reduced neophobia.
- The difference in neophobic tendencies between the two populations we examined are important in understanding the impact urbanization has had on birds.

Future Work

- Introducing new or varying types of novel objects to the trials.
- Neophobia levels in different local species? (potentially in comparison to Northern Cardinals)
- Food based neophobia.
- Neophobia vs Neophilia?



References

- Stanback, & Burke, T. H. (2020). Neophobia in Common Feeder Birds of a Southeastern Suburb. *Southeastern Naturalist* (Steuben, Me.), 19(2), 333–338. <https://doi.org/10.1656/058.019.0212>
- Timg. (2020). *Feeding Cardinals in the winter - how to attract & Feed Redbirds!* This Is My Garden. Retrieved April 5, 2023, from <https://thisismygarden.com/2020/12/feeding-cardinals-in-the-winter/>
- Greenberg, R. S. (1990, January 1). Ecological plasticity, neophobia, and resource use in birds. *DSPACE Home*. Retrieved August 31, 2022, from <https://repository.si.edu/handle/10088/415>