

iNaturalist

- iNaturalist is a website that allows users to post their observations of particular wildlife, which allows us to explore how posts reflect human-wildlife interactions across space and time.
- Users can learn about wildlife, crowdsource identifications of observed wildlife, generate data for researchers and data repositories, and participate in citizen science projects.
- Database relies on opportunistic information uploading, which reflects unique human-wildlife interactions.



Research Questions

- What is the distribution of observations per user?
- Where are different taxonomic classes being observed throughout Maricopa County?
- Is the average number of observations per user different among taxonomic classes?

Study Site – CAP LTER

- Approximate population of 4.485 million 9,224 square miles with 24 cities towns¹.
- Large regional park system comprised of community parks, desert parks, etc.
- 355m above sea level and is a desert climate that receives less than 10 inches of rain a year² with average annual temperature is 74.2°F and an average of 163.5 days a year over 90 °F².

Methods

- We obtained data on observations uploaded from January 1, 2016, and December 31, 2018, in the CAP LTER study site from iNaturalist's Application Programming Interface (API). These observations included the species and taxonomy of the observed wildlife along with the location and date of the observations.
- Ran statistical analysis to investigate if the average amount differed between taxonomic classes (ANOVA).
- Used GIS software to map observations throughout study area and with consideration of Urban Ecological Infrastructure (UEI).

References

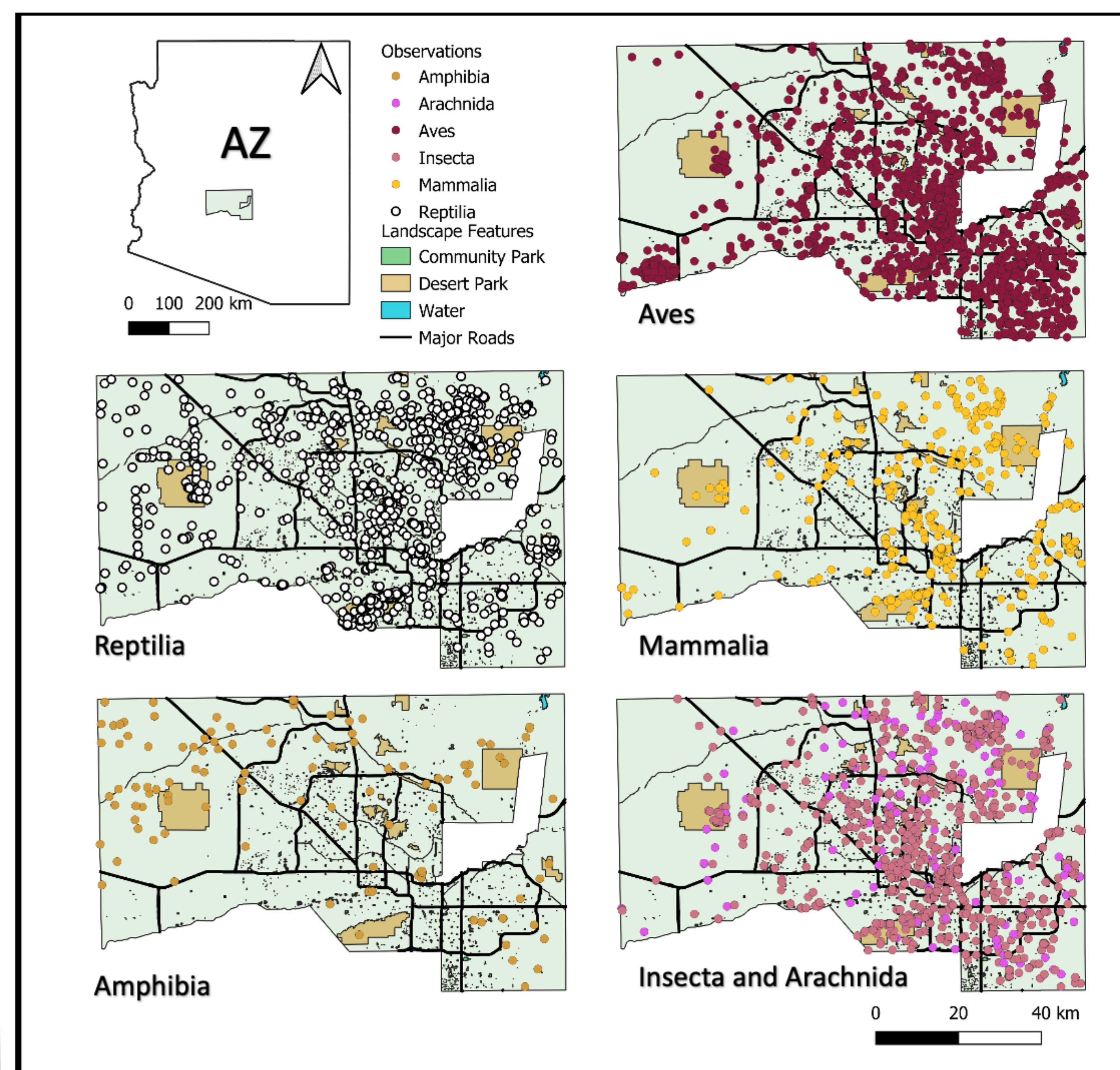
- Maricopa Climate Summary. (2021). Climate-Data.org. <https://en.climate-data.org/north-america/united-states-of-america/arizona/maricopa-16306/>
- Maricopa County Quick Facts. (n.d.) Maricopa County. <https://www.maricopa.gov/3598/County-Quick-Facts>

Results

- Despite wide range in observations per user (1-500+), average observations have remained constant.
- Significant increases in number of users.

| Year | # of Users | # of Obs. | Average # Obs./User | SD |
|------|------------|-----------|---------------------|-------|
| 2016 | 269 | 2575 | 9.57 | 38.60 |
| 2017 | 413 | 3512 | 8.50 | 30.05 |
| 2018 | 780 | 6061 | 7.77 | 28.59 |

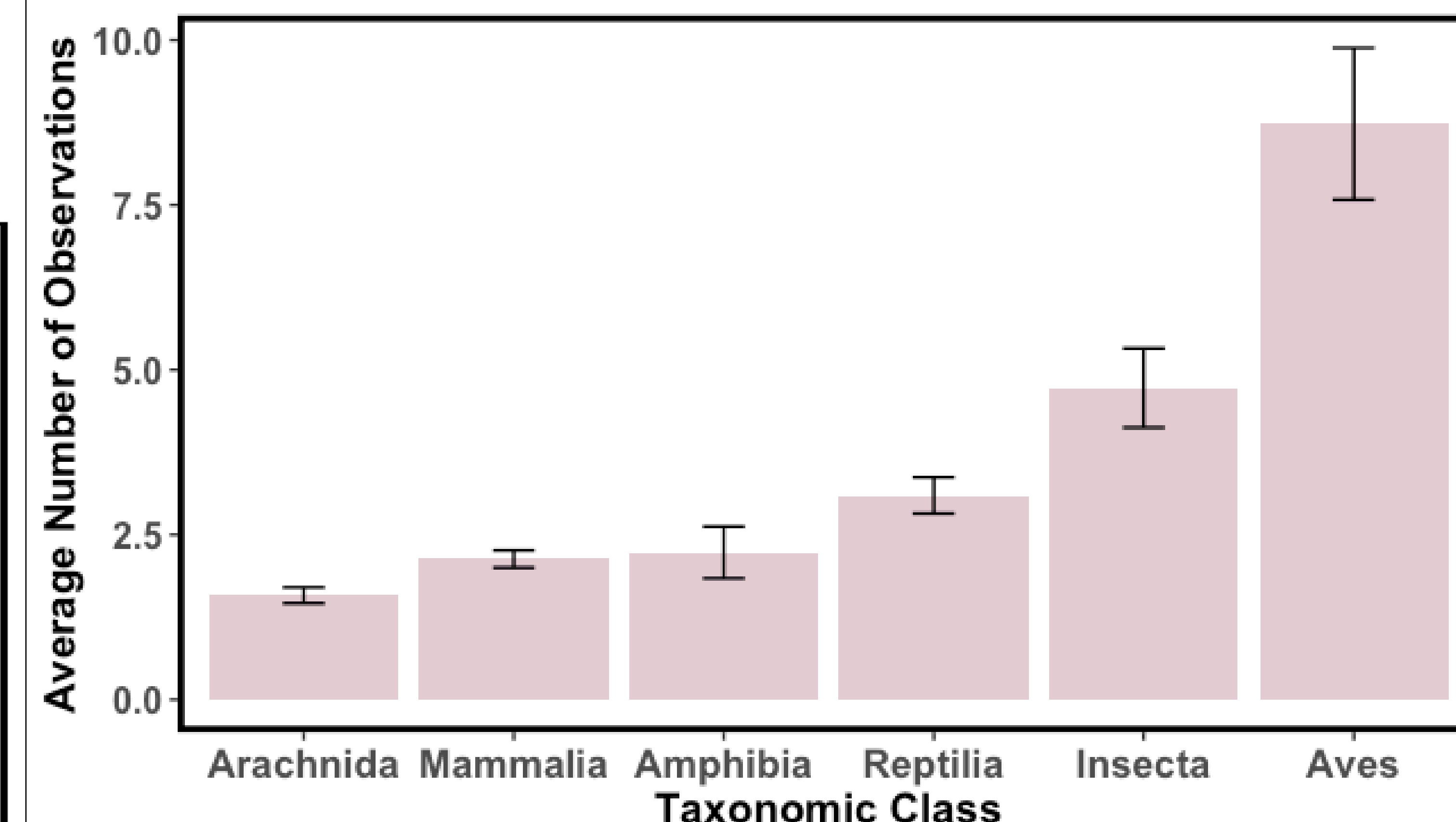
- Neither taxa nor observations are distributed evenly over the study site.
- 39% of all observations occurred in community parks, desert parks, and near water.



Results Cont.

- Results from ANOVA show taxa are not observed at the same frequencies.
- Taxonomic classes are not equally observed – Aves are observed most frequently.
- Of the 10 most frequently observed wildlife species, 8 were Aves, 1 Mammalia, and 1 Reptilia
- This does not reflect overall ecological distribution of taxa.

Average Number of Observations Per Taxonomic Class

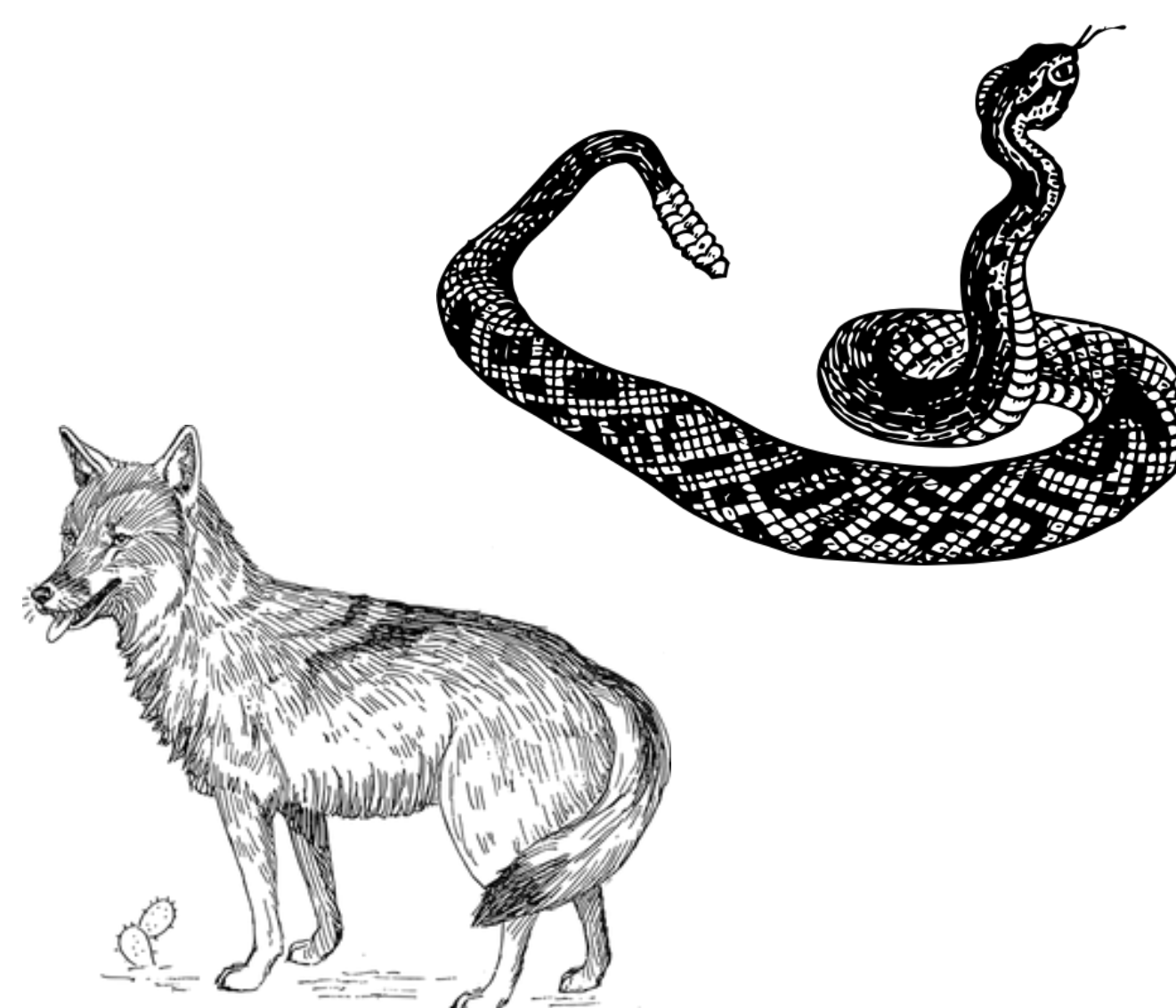


Conclusion

- The number of observations on iNaturalist has increased over time but the average observations have stayed the same.
- Increases in number of users may signal effectiveness of new opportunities for human-wildlife interaction.
- Frequency of bird observation likely due to “birding” culture and established practices (Ebird).

Next Steps

- Explore the distributions of observations in various socioeconomic areas and identify where people go to see wildlife as opposed to where wildlife is.
- Identify traits that make a species “worth uploading” and investigate the different motivations behind uploading.
- Look at the species being uploaded more frequently and identify functional traits.



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