Attitudes toward Pollinators in Residential Landscapes of Metropolitan Phoenix, Arizona

M. Fleeger[2], K.L. Larson[1,2], M.M. Wheeler[3], R. Andrade[2], and S.J. Hall[3]

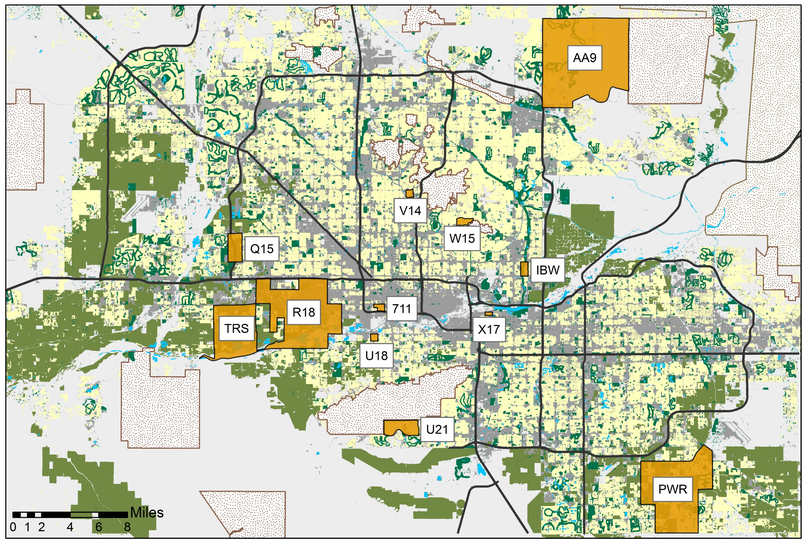
[1] School of Geographic Sciences and Urban Planning, [2] School of Sustainability, [3]School of Life Sciences

Goals and Importance

Pollinators provide essential ecosystem services since they assist in plant reproduction and the maintenance of biodiversity. Pollinators are not only crucial for the health of vegetation, but also for crop yields and agricultural productivity. Multiple factors, including urbanization, pose threats to pollinators and the ecosystem services they provide. The ability of pollinators to thrive in urban and surrounding landscapes depends on land management decisions that support pollinator habitat and health.

In this poster, we present 2017 data to assess attitudes toward pollinators across 12 surveyed neighborhoods (below). Specifically, we asked residents about *bees, bats, butterflies,* and *hummingbirds* (top center) to understand: **To what extent do people like or dislike pollinators, and how do attitudes vary by demographics (i.e., gender, ethnicity, age, income and education)?** These results are the beginning of research into the relationship between humans and pollinators, and what this means for the future.

The 12 Surveyed Neighborhoods in Metro Phoenix, AZ



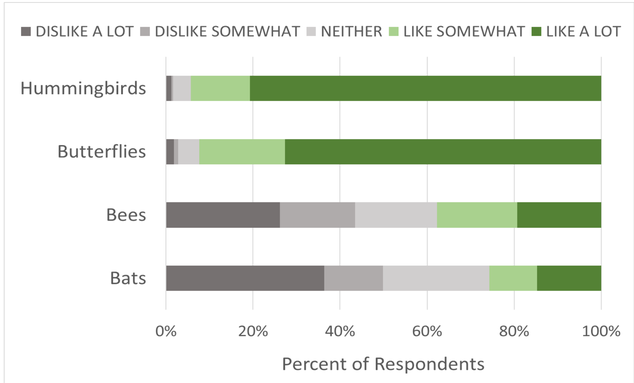
Survey Methods & Response Rates

The University of Wisconsin Survey Center administered the PASS in the summer of 2017. Surveys were delivered by mail only. Addresses were randomly selected from census block groups for each neighborhood.

For the 1,400 sampled households, **the response rate was 39.4%, yielding 496 survey respondents.** At the neighborhood level, the response rates varied from a low of 22.2% (n=22) in one of the lowest income areas (711) to a high of 55.6% (n=60) for a middle-income agricultural fringe area (PWR).

The correlations presented herein are Pearson rho values, and reports of significant differences by gender and ethnicity are based on t-tests.

Attitudes towards Pollinators



- Correlations were strong between attitudes towards bats and bees, which were relatively negative (above) compared to the butterflies and hummingbirds, which were also highly correlated (below).

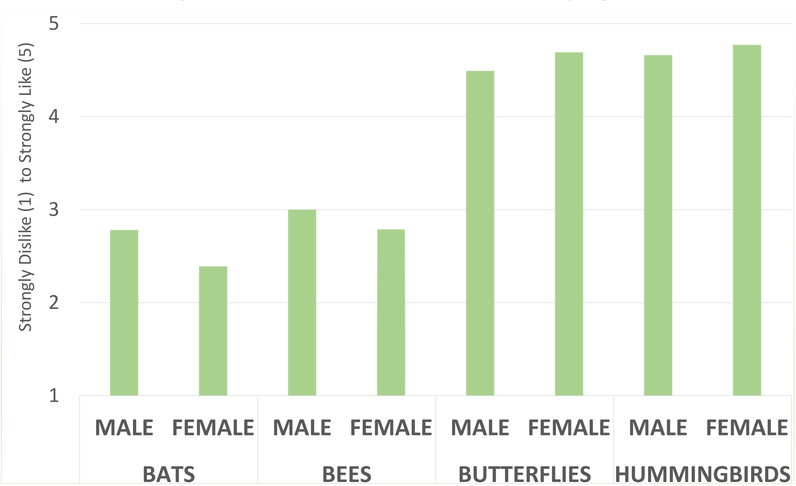
Pearson Correlations	Bats	Bees	Butterflies	Humming-birds
Bats	1	--	--	--
Bees	**0.66****	1	--	--
Butterflies	0.24*	0.32*	1	--
Hummingbirds	0.23*	0.28*	**0.78****	1

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

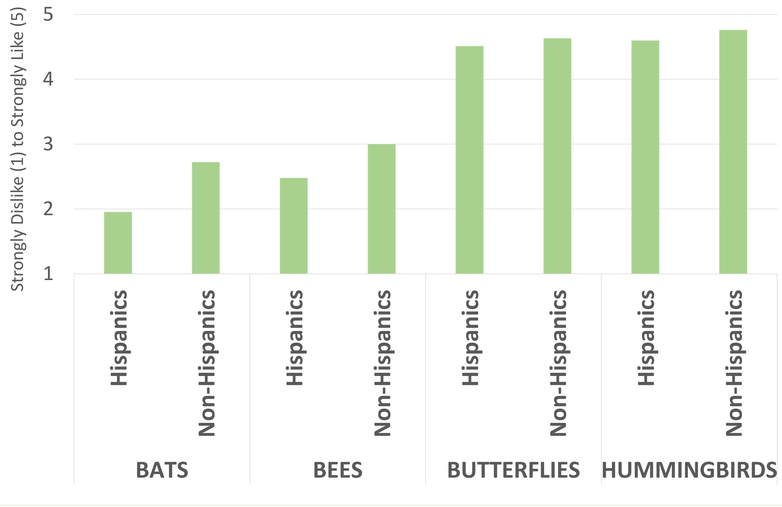
Attitudes based on Gender

- Women dislike bats and bees significantly more than men.
- Women like butterflies and hummingbirds at a slightly higher rate than men, although those differences are not statistically significant.



Attitudes based on Ethnicity

- Residents of Hispanic or Latino descent were significantly more negative about bats and bees relative to other respondents. No such differences were found for butterflies or hummingbirds.



Attitudes and other Demographics

- Income and education were significantly correlated with attitudes towards bats and bees, but not butterflies or hummingbirds.
- Age was not significantly correlated with attitudes towards any pollinators.

Pearson Correlations	Bats	Bees	Butterflies	Humming-birds
Education Level	**0.12****	**0.10***	0.01	0.02
Household Income	**0.15****	0.05	0.02	0.06
Age	0.06	0.08	0.04	0.05

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Conclusions

- We found that butterflies and hummingbirds were viewed very favorably, while bees and bats were viewed negatively by many survey respondents.
- Moreover, attitudes about pollinators—especially bats and bees—vary by gender, ethnicity, and socioeconomic factors.
- Going forward, we will explore additional explanations for attitudes about pollinators and their spatial distribution in relation to species abundance.

Acknowledgement: This material is based upon work supported by the National Science Foundation under grant number DEB-1637590,Central Arizona-Phoenix Long-Term Ecological Research.