

## Background

- Attitudes are a multi-dimensional construct defined as positive or negative judgments about an object (Thurstone 1928).
- Environmental attitudes are important because they affect quality of life and the likelihood of an individual to support sustainable planning decisions (Bonaiuto et al. 2002).
- Deserts cover one fifth of the globe's surface, but the individual and social importance of desert environments are disproportionately researched when compared to forest or greenspace.

## Research Questions

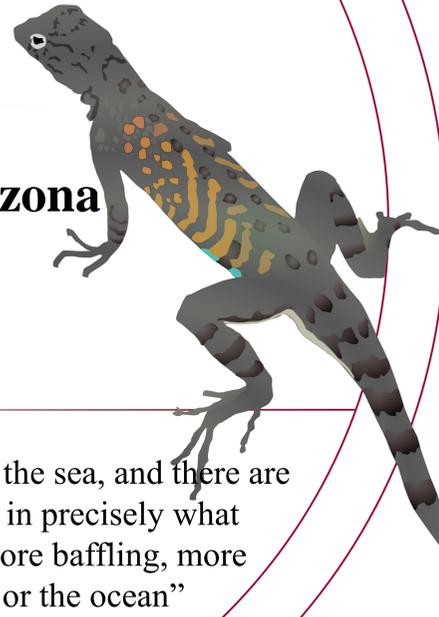
1. How are attitudes spatially distributed and temporally differentiated throughout neighborhoods?
2. What factors shape attitudes towards the desert in Phoenix?
3. Are attitudes towards the desert related to yard landscaping preferences?

## Desert Vignettes

A harsh "howling waste of wilderness" (Nash 1967)

A place to seek refuge and spirituality (Nash 1967)

Only 10.8% of residents in Arizona listed deserts as a landscape where they had a memorable experience (Law 1981)



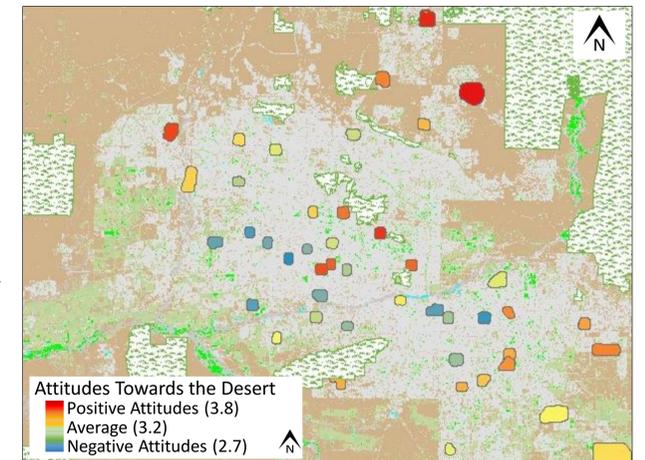
"There are mountain men, there are men of the sea, and there are desert rats, I am a desert rat... And why, in precisely what way is the desert more alluring, more baffling, more fascinating than either the mountain or the ocean"

-Edward Abby (Desert Solitaire)

## Methods

- We used data from the Phoenix Area Social Survey (PASS) collected in 2006 and 2011.
- Across 45 neighborhoods, 809 residents responded in 2006 and 806 residents responded in 2011.
- Models were created based off of 3 theoretical constructs (Socialization, Vulnerability, and Recreational Opportunity).
- Moran's I (spatial autocorrelation) and Getis-Ord statistic were used for spatial analysis.
- Survey questions used:

1. The desert is an empty wasteland
2. The desert is a special place to me



**Figure 1.** The spatial distribution of the 45 Phoenix Area Social Survey (PASS) neighborhoods in Phoenix, Arizona. Color indicates average score for attitudes towards the desert in each neighborhood, higher values indicate more positive attitudes towards the desert.

# Social-spatial analyses of attitudes towards the desert in Phoenix, Arizona

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## Results

- Attitudes were positive ( $3.2 \pm 0.05$ ). There was no significant change between the two time periods.
- Vulnerability explained the most amount of variation in attitudes towards the desert and was identified as the top performing model (Table 1).
- Attitudes were negatively related to preference for mesic yards (Figure 2a) and positively related to preference for xeric yards (Figure 2b).

## Acknowledgements



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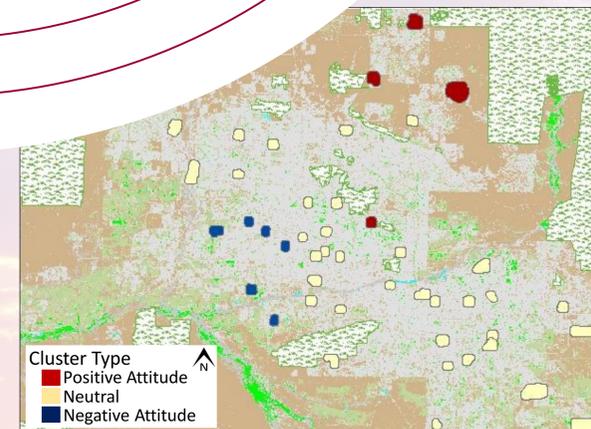
Bonaiuto, M., Carrus, G., Martorella, H., & Bonnes, M. (2002). Local identity processes and environmental attitudes in land use changes: The case of natural protected areas. *Journal of economic psychology*, 23(5), 631-653  
 Law, C. S. (1985). An experiential assessment of the Arizona landscape.  
 Nash, R. (1967). Wilderness and the American Mind.  
 Thurstone, L. L. (1928). Attitudes Can Be Measured. *American Journal of Sociology* 33(4), 529-554

**Table 1.** Results for GLM models of neighborhood attitudes towards the desert ranked from best to worst performing using delta AIC scores.

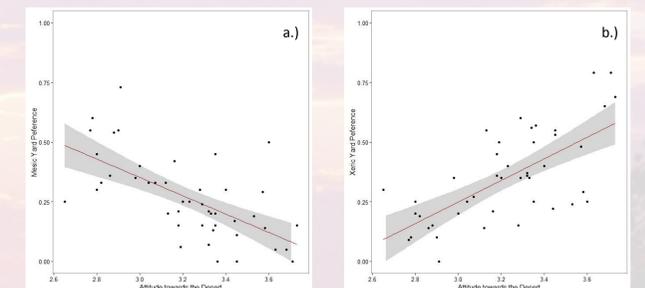
Model	Construct	$\Delta$ AICs	Like
<b>Hispanic Ethnicity + NEP Index</b>	<b>Vulnerability</b>	<b>0.0</b>	<b>1.00</b>
<b>Hispanic + Income</b>	<b>Vulnerability</b>	<b>1.3</b>	<b>5.2e-01</b>
Income + Neighborhood heat	Vulnerability	7.8	2.0e-02
Distance to Desert	Recreation	9.7	7.9e-03
Socialization	Socialization	19.3	6.3e-05
Grassiness + Xeric Yard	Socialization	26.7	1.6e-06
Distance to Desert + Income	Recreation	30.1	2.9e-07

## Conclusions

- Vulnerability (ethnicity, heat exposure, and socio-economic status) played the largest role in shaping attitudes towards the desert.
- Vulnerable populations often have a more direct connection to the environment due to a lack of resources to buffer exposure to extreme conditions. This can increase ecological stewardship but also cause negative attitudes in harsh environments.
- There was evidence for spatial clustering in neighborhoods across Phoenix, especially in the Northeast and Southwest valley.
- Attitudes towards the desert are related to yard preference, indicating a connection to the desire to manage yards to mimic desirable landscapes. This does not directly result in actual yard landscaping choices due to economic and social controls.



**Figure 2.** Spatial clusters of positive and negative attitudes towards the desert. The global Moran's I statistic gave evidence for spatial correlation between attitudes in Phoenix ( $I = 0.21$ ,  $z$  score = 3.1,  $P < 0.002$ ).



**Figure 3.** The relationship between yard preference and attitudes towards the desert in Phoenix for: (a) mesic yards ( $r^2 = 0.39$ ,  $F = 29.2$ ,  $P < 0.0001$ ), and (b) xeric yards ( $r^2 = 0.44$ ,  $F = 35.7$ ,  $P < 0.0001$ ).