

# Landscape Preferences and Yard Management: The effects of homeowners' values on residential landscapes

Colleen A. Strawhacker<sup>1</sup>, Elizabeth M. Cook<sup>2</sup>, Kelli L. Larson<sup>3,4</sup>, and Sharon J. Hall<sup>2</sup>

<sup>1</sup> School of Human Evolution and Social Change, ASU, Tempe, AZ, <sup>2</sup> School of Life Sciences, ASU, Tempe, AZ, <sup>3</sup> School of Sustainability, ASU, Tempe, AZ, <sup>4</sup> School of Geographical Sciences, ASU, Tempe, AZ

## Research Question

**To what degree do core values, landscape-specific priorities, and environmental worldviews influence residents' expressed landscape preferences, as well as actual landscaping choices at the individual household and neighborhood scales?**

**Hypothesis: Values and priorities will be reflected more in landscaping preferences than practices, due to overriding institutional factors, such as Homeowners' Associations (HOAs) regulating landscaping practices.**

## Introduction

Residential landscapes, such as household lawns, are an important part of the urban ecosystem. Through intense human management, grass lawns are the largest irrigated crop in the United States, covering over 10 million hectares of land (Milesi *et al.* 2005).

**We investigated the link between human cognitive drivers, such as residents' values and priorities, and the resulting impact on residential landscapes through residents' landscaping preferences and practices.** Merging social and ecological data from 121 households in four Phoenix neighborhoods, we examined homeowners' core values, landscape-specific priorities and environmental worldviews, as well as their landscaping preferences and choices regarding their front and back yards.

## Value Constructs and Measures

Values are core beliefs that transcend situational contexts, defining what is most important to people broadly (Schwartz 1994). **In addition to focusing on broad-based values, we also examined domain-specific values related to residential landscapes and ecological worldviews.**

### Core (Abstract) Values:

- Guide behavior and decision-making (Schwartz 1994, Stern 2000).
- Four universal values: *Altruism* v. *Selfish* and *Traditional* v. *Openness to Change* values dimensions (Schwartz 1994).

### Landscape-Specific Priorities:

- Explain residents' priorities for managing their outdoor yard space
- *Ease of maintenance, Environmental impact, Leisure time* with an area to relax and spend time with friends, or *Socially fitting* into the neighborhood

### Environmental Worldviews:

- Reflect residents' valuation of the environment. (Dunlap *et al.* 2000).
- *Ecocentric*: valuing the environment over humans
- *Anthropocentric*: valuing humans over the environment



Figure 1: Newly developed North Phoenix fringe neighborhood



Figure 2: Newly developed, wealthy Awhatukee fringe neighborhood

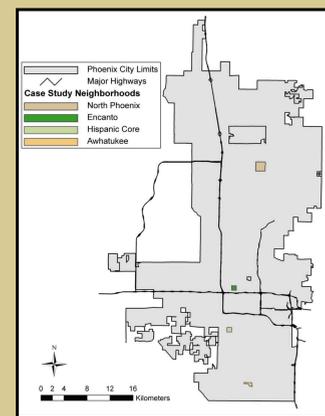


Figure 5: City of Phoenix and Case Study Neighborhoods of Analysis



Figure 3: Relatively wealthy, historic Encanto neighborhood



Figure 4: Lower income, historic Hispanic neighborhood

## Methodology

- Stratified sampling design of 400 households in four Phoenix neighborhoods
- Data collected in a mail-based social survey (2007) & an observational field survey (2008)
  - 121 homeowner responses to social survey, 400 household observations in field survey
- Composite value indices created by averaging responses of social survey questions
  - Performed Cronbach's alpha test (alpha > 0.5-0.7 shows internal reliability of index, Table 1)
  - *Core Values Indices*:
    - Four pre-determined value dimensions used from Schwartz (1994)
  - *Landscape-Specific Priorities & Environmental Worldview Indices*:
    - Questions included in each index determined by exploratory factor analyses
- Compared values among different landscaping preferences and practices, and also among neighborhoods, using Analysis of Variance tests (Table 1)

Constructs	Name of Index	Cronbach's Alpha	Overall Mean (+/-SD)	Neighborhood Means (+/-SD)			F Statistic
				Encanto	North Phoenix	Awhatukee	
Core (General) Values	<i>Altruism</i>	0.841	5.01(0.60)	4.91(0.61)	5.00(0.59)	5.06(0.59)	0.608
	<i>Selfish</i>	0.657	4.58(0.49)	4.53(0.53)	4.52(0.51)	4.69(0.38)	1.378
	<i>Open to Change</i>	0.744	5.16(0.56)	5.17(0.63)	5.12(0.54)	5.19(0.51)	0.121
	<i>Traditional</i>	0.699	4.52(0.53)	4.37(0.61)	4.48(0.51)	4.58(0.43)	3.37**
Landscape-Specific Priorities	<i>Leisure</i>	0.834	4.97(1.24)	5.00(1.14)	4.91(1.30)	5.16(1.16)	0.405
	<i>Ease of Care &amp; Environmental Impact (Eco-Maintenance)</i>	0.720	4.59(1.11)	4.35(1.17)	4.99(1.01)	4.58(1.06)	3.242**
	<i>Social Fit</i>	0.526	4.98(0.85)	5.11(0.94)	4.81(0.90)	5.12(0.57)	1.635
Environmental Worldviews	<i>Eco-centric</i>	0.758	4.60(1.11)	4.68(1.16)	4.65(1.14)	4.46(1.04)	0.431
	<i>Anthropocentric</i>	0.814	2.52(1.13)	2.27(1.22)	2.50(1.00)	2.82(1.10)	2.4

Table 1: Cronbach's alpha values of created indices listed by overall construct; the overall mean (+/-SD) for each index; the individual means (+/-SD) for each case study neighborhood; and the F statistic for ANOVAs comparing means among neighborhoods (Hispanic Core neighborhood excluded from neighborhood analyses due to low social survey response rate (n = 7); \*\* indicates a significant difference (p<0.05) among neighborhoods).

## Results

- Value indices were generally homogenous within and among neighborhoods (Table 1)
- The Eco-Maintenance index as a landscape-specific priority was significantly different among neighborhoods (Table 1)
  - **Residents from the newly-developed, mostly xeriscaped North Phoenix neighborhood were more concerned with the ease of maintenance and environmental impact of their yards than residents from the mostly flood irrigated, historic Encanto neighborhood.**
- Only the Eco-Maintenance landscape priority index varied significantly by landscape preference or landscape choices (Figure 6a & b).
  - **Residents with mesic yards (or preference for mesic yards) were less concerned with the ease of care and environmental impact of their yards than residents with xeric yards.**
- The core value and environmental worldview indices varied little in relation to landscape preferences or choices.

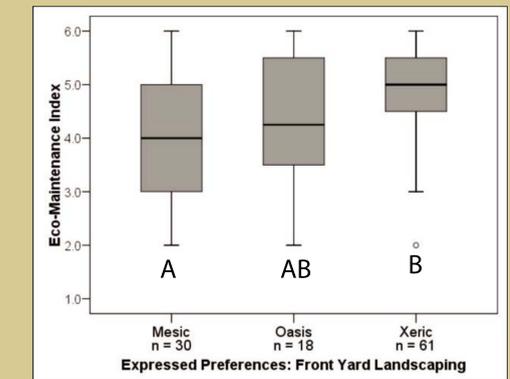
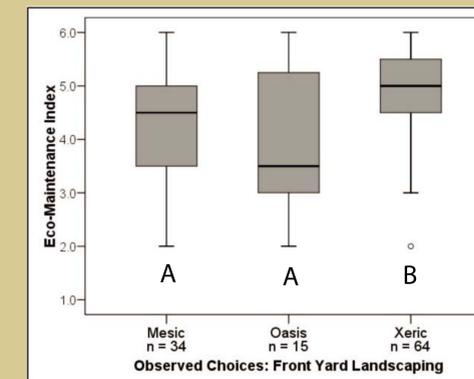


Figure 6: Median score and ranges on Eco-Maintenance (Ease of Care and Environmental Impact) Index for social survey respondents' with different landscaping choices (Figure 6a) and preferences (Figure 6b) for their front yard (Different letters indicate a significant difference between means).

## Conclusion

**As seen above, all of the indices on homeowners' values, except the Eco-Maintenance landscape priorities index, had a minimal effect on homeowners' landscaping preferences or decision-making.** Our findings indicate differences in values may not exist at this spatial scale. Other cognitive factors (i.e. social norms and beliefs) or social institutions (i.e. HOAs or municipal regulations) may be more important drivers of preferences and choices.

Additionally, our research does not yet reflect the causal drivers, indicating if residents manage their yard according to their landscaping preferences or if their preferences reflect the landscaping present when they moved into their home.

Unexpected findings may be due to a small sample size, however we believe added detail and further analyses will help to clarify the mixed results. Additionally, these and further analyses will aid in understanding the complex social and ecological interactions of residential landscapes.

## References

- Dunlap, R.E., *et al.* (2000). Measuring Endorsement of the New Ecological Paradigm (NEP): A revised NEP Scale. *Journal of Social Issues* 56(3): 425-442.
- Milesi, C., *et al.* (2005). Mapping and modeling the biogeochemical cycling of turf grass in the United States. *Environmental Management* 36:426-438.
- Schwartz, S. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues* 50(4):19-45.
- Stern, P. (2000). Toward a Coherent Theory of Environmentally Significant Behavior. *Journal of Social Issues* 56(3): 407-424.