

Feeling rattled? Resident attitudes, urban habitat features, and patterns of snake removals in the Phoenix Metropolitan Area

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Western Diamond-backed rattlesnake (*Crotalus atrox*)

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Introduction and Research Questions

- Dataset of snake removal/relocation calls from Rattlesnake Solutions, LLC provides location and snake species present.
- Western Diamond-backed Rattlesnakes (*Crotalus atrox*) and Sonoran Gophersnakes (*Pituophis catenifer affinis*) are commonly encountered
- Do attitudes towards snakes differ between those who seek out snake removal services and the general public?
- Do urban habitat features inform patterns of removal calls? What features are most telling?

How are human-snake interactions related to variables of the environment and attitudes of residents in Phoenix?

Results

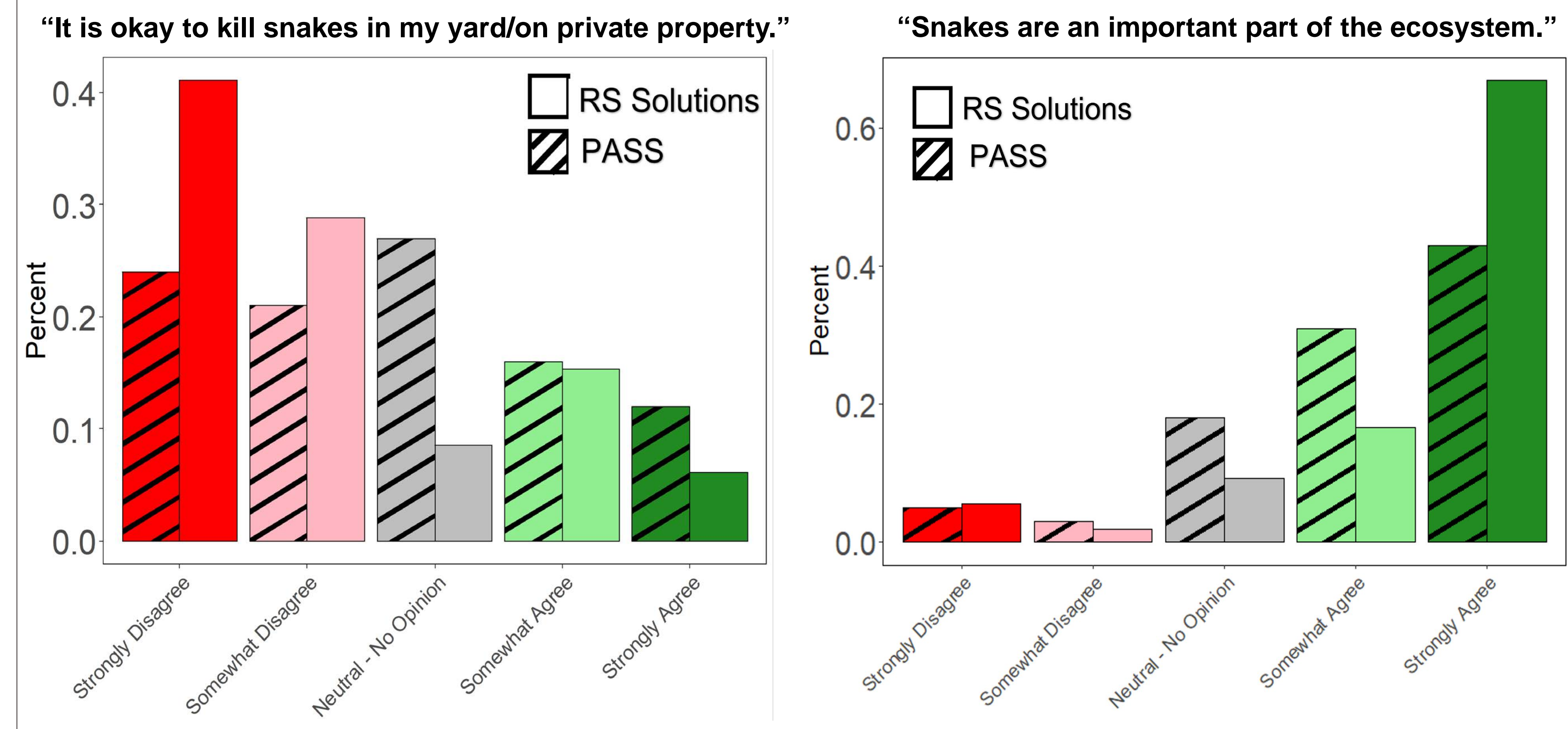


Figure 1. Comparison of survey results from the PASS and Rattlesnake Solutions client survey.

Resident Attitudes (Figure 1)

- Clients of Rattlesnake Solutions reported a stronger aversion to killing snakes within their yards/private property
- PASS responses and Rattlesnake Solutions clients demonstrate similar attitudes regarding the importance of snakes in ecosystems (Figure 1)

Front Yard Habitat (Table 1)

- Out of 13 candidate models, the top five models included available low cover as an explanatory covariate.
- Tidiness and vegetation also appear to have influence on habitat use.

Table 1. The five highest ranked models included a positive correlation of amount of available low cover (perc.alc) with habitat being used by snakes. Models ranked by AICc. Model averaged beta estimate = 6.03. Direction of relationship indicated by +/-

	AICc	ΔAICc	weight	bare	gravel	turf	imperv	veg	perc.alc	perc.xeric	tidy
global_model	249.92	0.00	0.42	+	+	+	+	-	+	+	+
model_7	251.60	1.68	0.18						+		
model_10	252.04	2.12	0.15						+		+
model_9	252.43	2.52	0.12					-	+		+
model_11	252.80	2.88	0.10					-	+		
null_model	261.54	11.62	0.00								



Rocks and vegetation provide low cover for a Western Diamond-backed rattlesnake in a suburban yard.



Gophersnake (*Pituophis catenifer*)

Methods

Front Yard Habitat

- 100m transects recording front yard habitat features at removal locations (n = 60) and random locations (n = 167)
- Habitat variables included tidiness (Figure 2), land cover types, available low cover, and proportion of xeric yards per transect (Table 1)
- Resource Selection Function (GLMs)
 - Analyses compare used locations (removals) vs. available habitat (random points)

Resident Attitudes

- Rattlesnake Solutions client survey deployed 29MAR2021 – 29MAR2022. Questions designed to match those included within PASS 2021.
- PASS 2021 responses regarding opinions and attitudes towards snakes compared to responses from the client survey

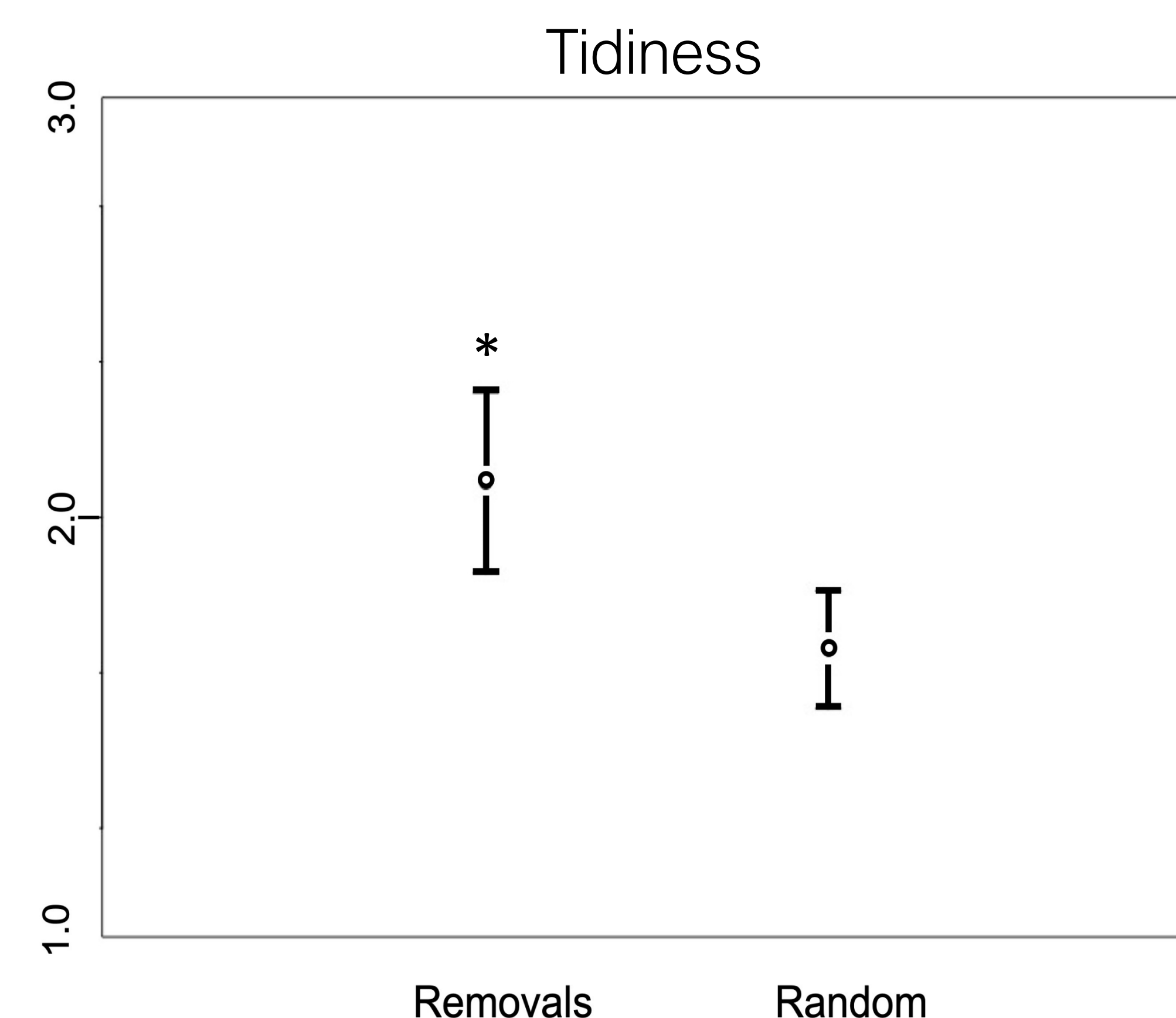
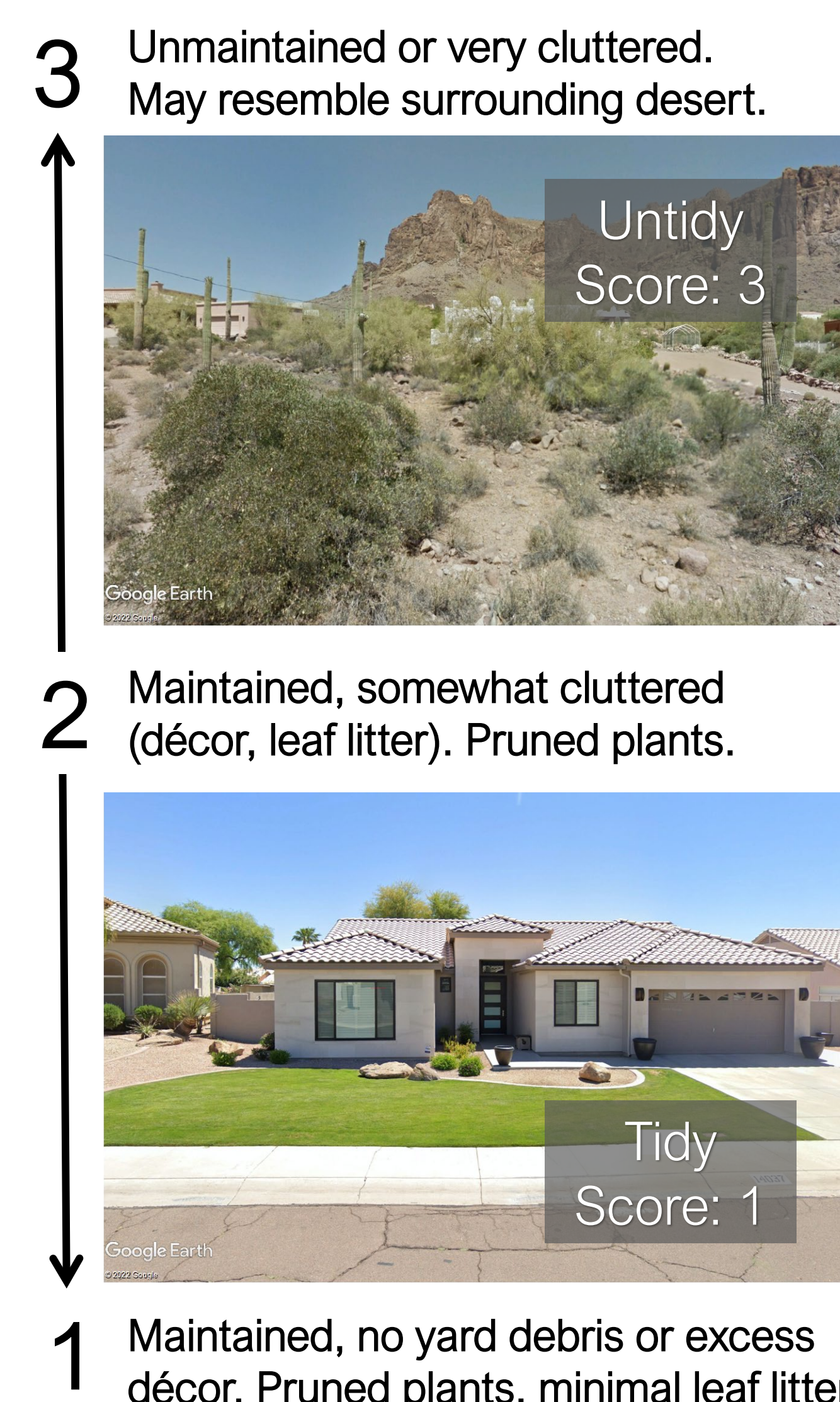


Figure 2. Yards received a tidiness score from 1 - 3. Average tidiness for each 100m transect was used as an explanatory covariate within models. 95% C.I. plot shows a higher mean score at removal locations compared to random locations.

Conclusions

- Contacting snake removal professionals possibly viewed as a wildlife stewardship action
- At a small spatial scale (i.e., within neighborhoods), presence of available low cover is a strong indicator of habitat use by snakes.

Future Directions

- Effects of habitat features and land cover types on removal patterns at a broader spatial scale
- Analyses of removal patterns among snake taxa at multiple spatial scales

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Literature Cited
Bateman et al. 2021. Unwanted residential wildlife. *Global Ecology and Conservation*.