

Hummingbird Aggression and Use at Artificial Feeders with Varying Sugar Concentrations

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Introduction

- Hummingbirds display aggression to access high quality food.
- They may not always prefer feeder solutions with the highest available concentration.
- Does aggression and use at feeders vary with sugar concentration?
- Hypotheses: Hummingbirds will be more aggressive and spend more time at feeders with intermediate sugar concentrations (40%).

Methods

- 9 feeders in sets of 3 were placed around campus.
- Concentrations of 25%, 40%, and 60%.
- I observed the number of aggressive interactions, time spent, and the number of visits to each feeder.

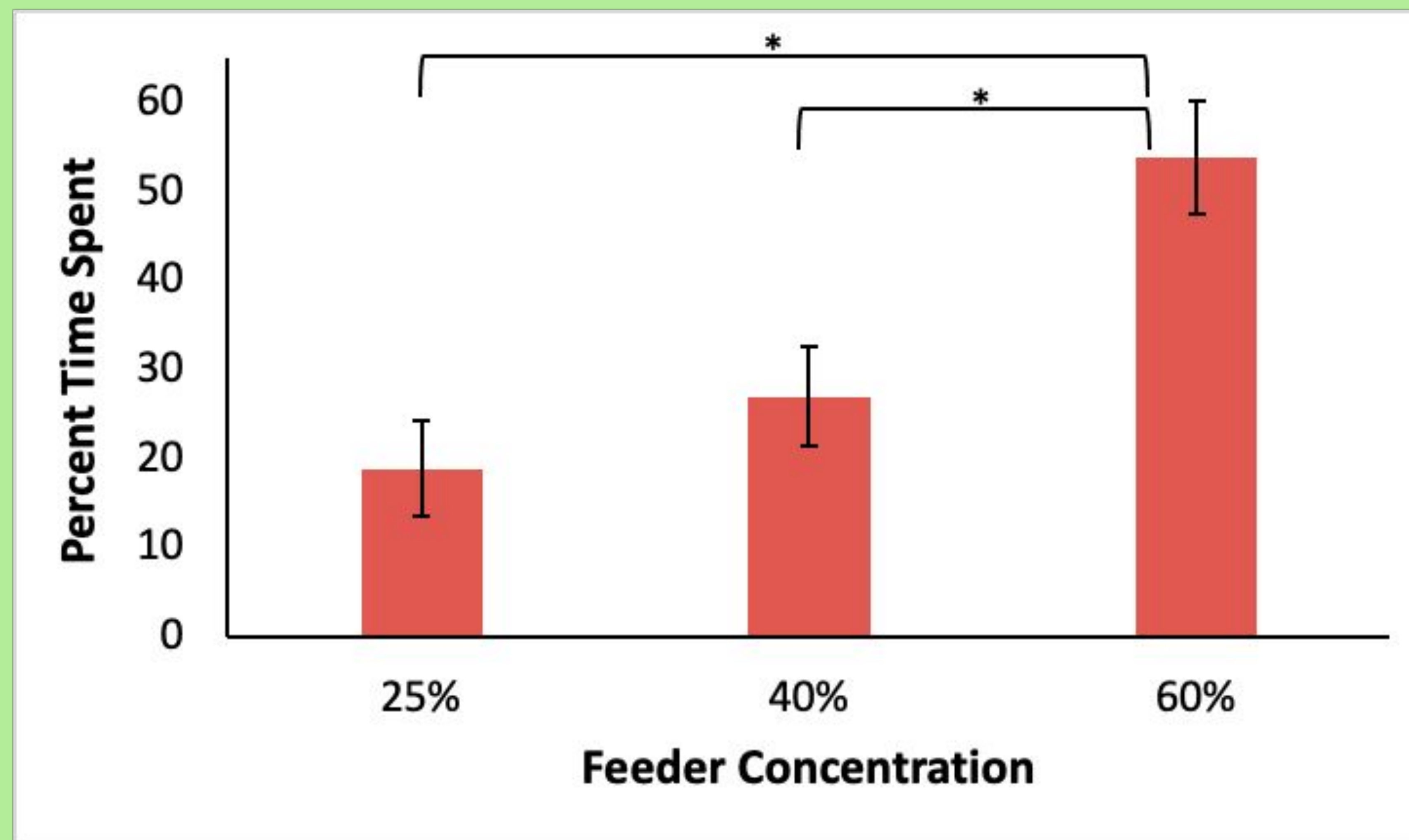
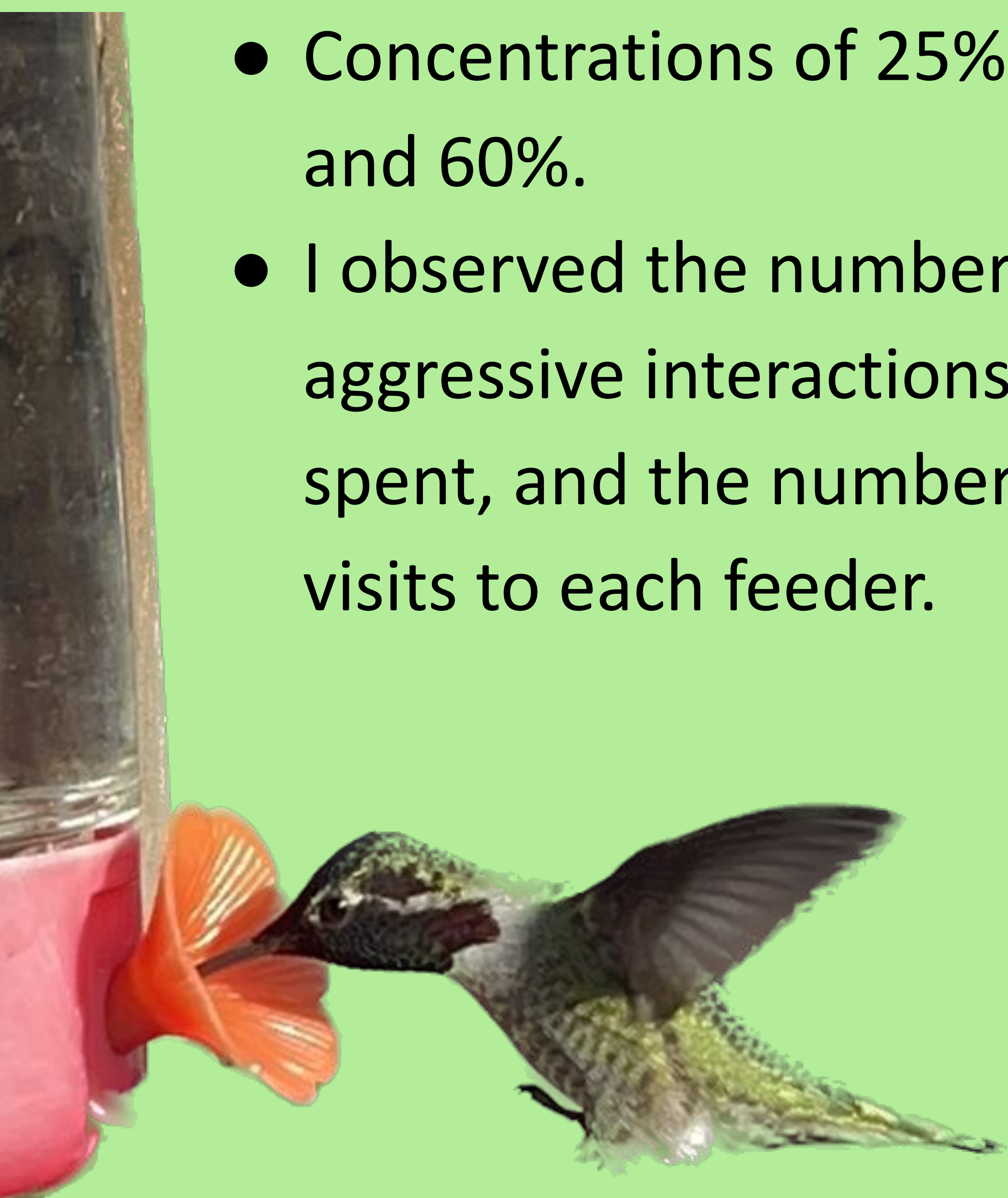


Figure 1. Mean percent of time hummingbirds spent at each feeder (n=99) in Arcata, California in 2023. Error bars = standard error, asterisk = significant difference between groups.

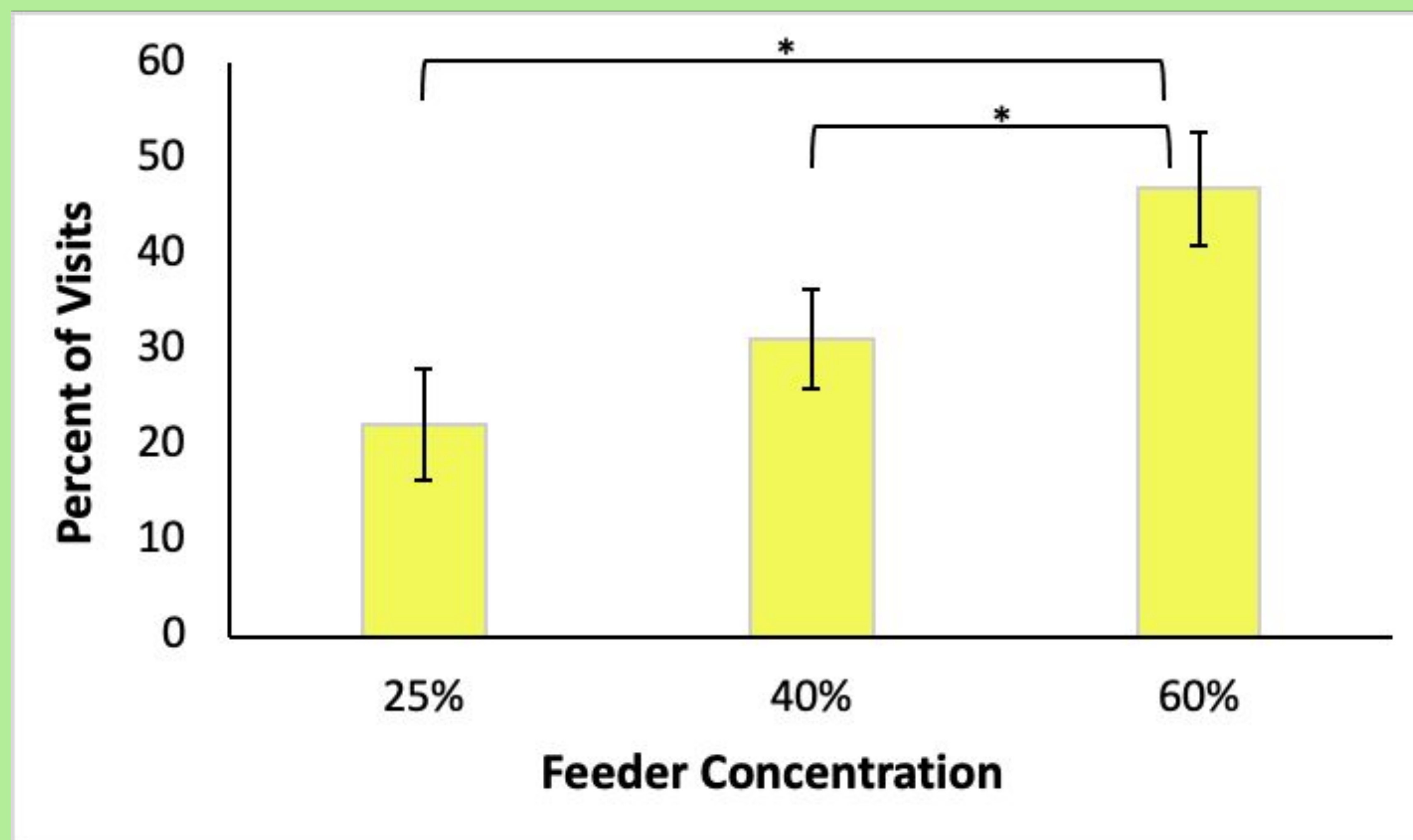


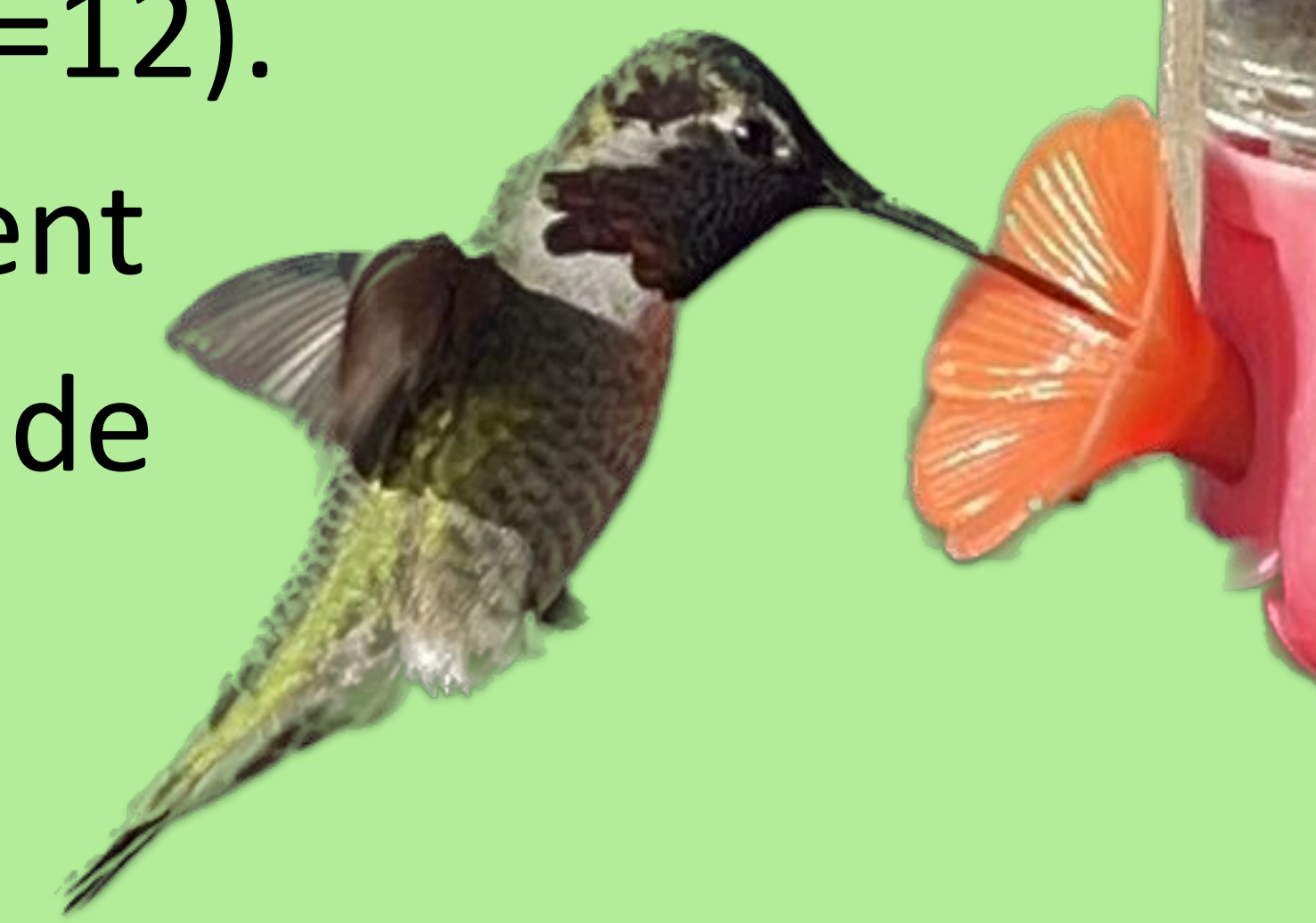
Figure 2. Mean percent of visits by hummingbirds at each feeder (n=99) in Arcata, California in 2023. Error bars = standard error, asterisk = significant difference between groups.

Table 1. Number of aggressive interactions (n=12) by hummingbirds at all three feeder concentrations in Arcata, California in 2023.

Feeder concentration	Number of aggressive interactions
25%	2
40%	6
60%	4

Results

- Minimal aggression observed at specific feeders (n=12).
- Hummingbirds spent more time and made more visits to feeders with 60% sugar concentrations.



Discussion

- Hypotheses rejected.
- Higher concentrations increase viscosity, lowering volumetric flow rate onto the tongue.
- Hummingbirds potentially preferred the taste of solutions with high sugar concentrations.
- More concentrated solutions could be an ecological trap.



References

