Evaluating sex differences in behavioral responses to social scents in coyotes

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Introduction

Behavioral responses toward environmental changes are based off individuals. The social dynamics and structure are often regulated by the diversity of personality types between individuals. For instance, aggressive individuals may secure more reproductive opportunities, while individuals that are more exploratory may capitalize on rarely exploited food resources[1].

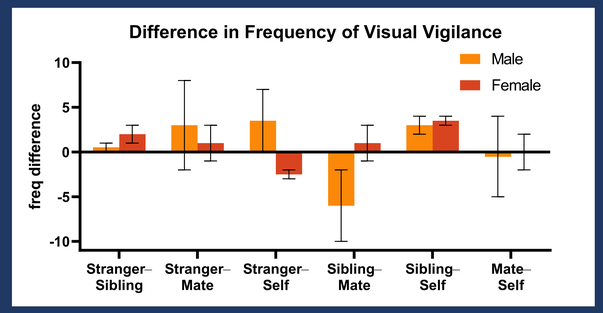
Coyotes (*Canis latrans)* frequently utilize olfaction as the primary mode of communication between individuals. This involves regularly urinating or defecating to demarcate home range boundaries and deter intrusion from conspecifics [2]. By studying their behavioral response to various urine samples, we can establish that abundances and frequencies of behavior are accompanied by parallel increases in olfactory cues (increased scent-marking, investigation) [2,3].

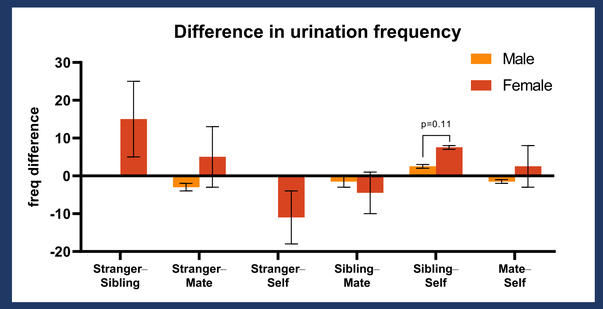
Hypotheses:

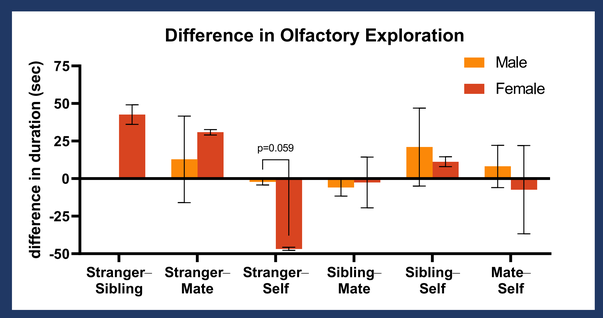
1. **Male and female coyotes would differ in their behavioral responses to scent stimuli.**
2. **Coyotes would be more interested in pair mate stimuli than stranger or sibling.**

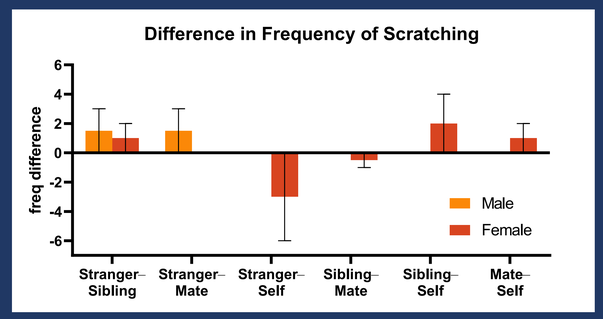
Methods

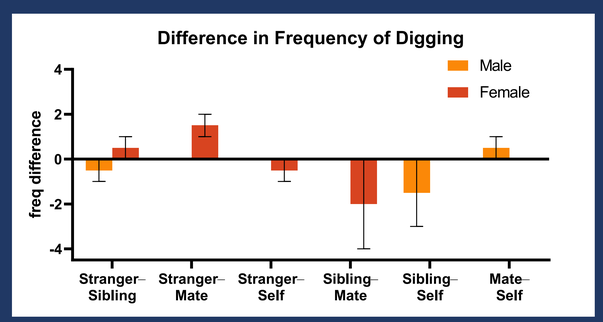
- Subjects included 2 male-female pair mates (n=4 coyotes), who were separated into four pens for testing.
- Each pen had two PVC bowls staked into the ground ~22 feet apart into which urine from known individuals was placed.
- Motion-activated cameras were placed at chest height and pointed at each bowl, with no overlap of footage between the bowls and the surrounding area.
- Each coyote had two stimuli per day for six days in their pen.
- Collected cameras data after 24 hours.
- Analyzed footage for behavioral responses using an ethogram program (BORIS).
- Recorded instances of visual vigilance, urination, scratching, and digging, as well as durations of sniffing.
- Analyzed difference scores for each behavior between male and female using two-way repeated measures ANOVA.











Results

There were no significant main effects of sex or stimulus across any behaviors.

- Trend (p=0.011) for a sex difference in urination toward sibling vs self.
- Trend (p=0.059) for a sex difference in olfactory investigation of stranger vs. self such that females sniffed self much more than stranger while males did not differentiate.

Future Directions

- This data is only a subset of a larger study investigating the impact of breeding season, sex, and pairing status on behavioral responses to social odors.
- In the future there will be an increased sample size that spans across these different groups and seasons.
- Future research that is conducted may help researchers to understand behavioral responses and social recognition among coyotes as well as other Canidae species.

References

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