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Challenging Boundaries: Investigating the relationship between human persecution and Coyote behavior in California

Steven Childs
sdc97@humboldt.edu

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Steven Childs, sdc97@humboldt.edu, Department of Wildlife, Cal Poly Humboldt University, 1 Harpst Street, Arcata, Ca 95521

BACKGROUND

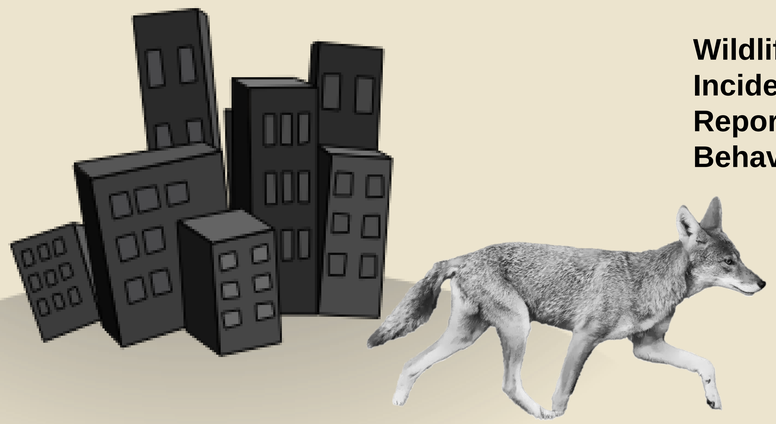
- Coyotes play a significant role in human wildlife conflicts
- Coyotes have demonstrated adaptability to human presence, displaying increased boldness in urban environments
- This behavioral shift challenges conventional understanding
- There is limited understanding of how lack of persecution may impact coyote behavior

INTRODUCTION

- Over the last few decades, human coyote conflicts have been on the rise
- Human wildlife conflict is a pervasive issue posing significant challenges for conservation efforts locally and globally
- Our study investigates how coyote behavior correlates with their proximity to areas where coyotes are hunted and areas where coyotes are not hunted
- Insights gained from the interactions between human activities and wildlife can inform management strategies

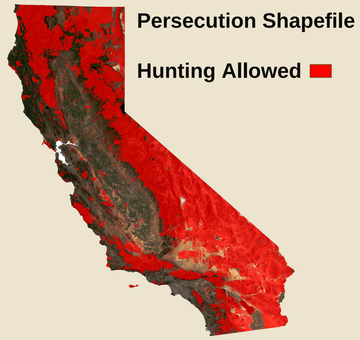
HYPOTHESES

- Coyotes living closer to urban and suburban areas, further away from areas where legal hunting takes place will display bolder behavior
- Coyotes in rural areas, closer to areas where hunting is legal will display less bold behavior



METHODS

- 4,670 CDFW Human Wildlife conflict incidents for coyotes from 2010 and 2023. Each incident categorized by date, behavior, and location
- ArcGIS Pro to generate public lands shapefile (USDA-FS, BLM, CDFW, DoD) where hunting is legally allowed
- ArcGIS Pro to generate a City/Urban lands shapefile where hunting is not generally allowed
- ArcGIS Pro to determine distances for each incident to City/Urban and Persecution shapefiles in meters
- Appropriate statistical testing conducted using RStudio

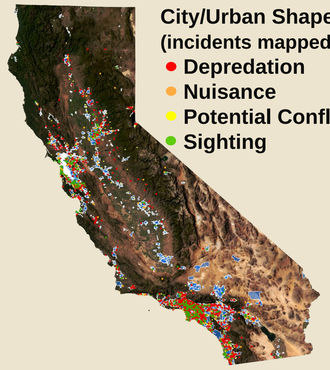


Persecution Shapefile

Hunting Allowed

City/Urban Shapefile

Hunting Not Allowed



City/Urban Shapefile (incidents mapped left)

- Depredation
- Nuisance
- Potential Conflict
- Sighting

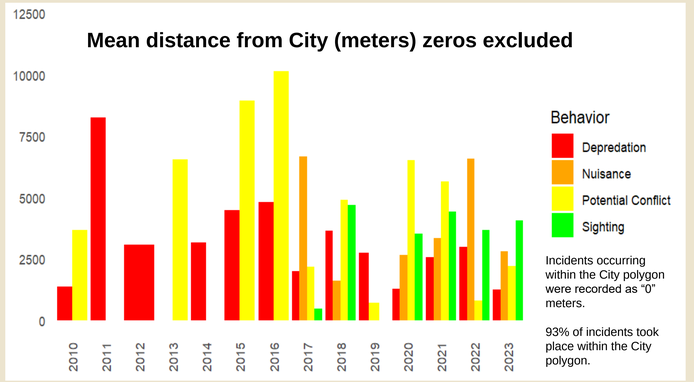
DISCUSSION

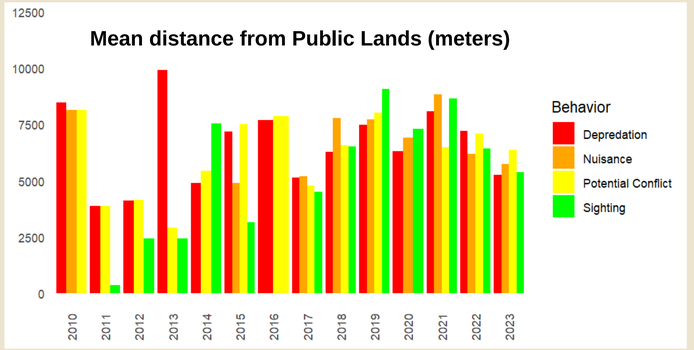
- Welch Two Sample t-tests show significant differences in mean distances between incidents in City and Persecution areas ($p < 0.001$)
- Significantly lower mean distances from the City compared to persecution as indicated by very small p-values ($p < 0.001$)
- Tukey test confirms substantially higher mean distances across behaviors for Persecution areas
- Shorter mean distances observed for behaviors in City compared to Persecution areas
- Findings provide empirical evidence supporting the hypothesized relationship between coyote behavior and proximity to urbanization and hunting zones

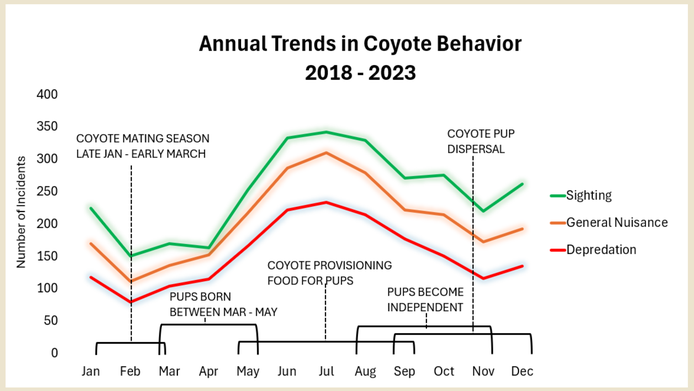
Wildlife Incident Report Behaviors

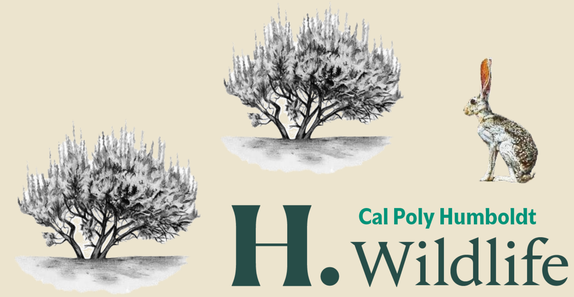
- "There is/are wild animals on or around my property that is/are molesting/killing my pets/livestock, and/or causing property damage (e.g. depredation)"
- "There is/are wild animals on or around my property that is/are disturbing my garbage, causing noise or creating some other type of disturbance"
- Catch all category for incidents that do not fit into Depredation, General Nuisance, and Sighting
- "I want to report for statistical purposes only" categorized as Sighting

RESULTS









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