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Recommended Citation

Monterastelli, Anna; Weaver, Melinda; Romolini, Michele; and Strauss, Eric, "Core Results From a Three-Year Management Study of Human-Coyote Conflict in Culver City, CA with Suggestions for Conflict Amelioration" (2023). *Center for Urban Resilience Research Posters*. 51.
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Core Results From a Three-Year Management Study of Human-Coyote Conflict in Culver City, CA with Suggestions for Conflict Amelioration

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Center For Urban Resilience and Biology Department | Loyola Marymount University | Spring 2023

Abstract

A three-year management study of urban coyotes (*Canis latrans*) by the LMU Center for Urban Resilience is being conducted in Culver City, CA in order to assist local government officials and residents in managing human-coyote conflicts. The study is in response to an increase in predation of domestic cats (80+) by local populations of coyotes. Our research has been focused on the ecological factors that have been drivers of the recent increase in predation events.

Multiple techniques were employed to better understand coyote behavior, including radio telemetry, diet analysis, remote camera trap systems, molecular analysis and direct observations. In addition, human social surveys were conducted in order to better determine resident attitudes towards coyotes and their management. Finally, formal and informal educational materials were prepared in order to inform local residents and students about safe coexistence with coyotes.

This poster provides an overview of findings and management suggests of the three-year study. Results include a strong relationship between the impacts of long-term drought and risk of predation by coyotes on cats.

Introduction

- With the urbanization of formally rural environments came anthropogenic stressors affecting the neighboring wildlife causing coyotes to be top predators.
- Coyotes adapt to the now urban environment causing unwanted encounters with Culver City locals in residential and recreational areas.
- Urban areas provide diet substitutions for wildlife species like coyotes in the form of... trash and domesticated animals (Larson et al., 2020).
- Cats are typically found to be avoiding areas with known threats such the coyotes.
- Scat analysis provides a depiction of coyotes' holistic diet and the variation over time (six months) and serves as a measure of cat predation.
- Respondents in a social survey showed perceived knowledge of coyotes that is contradictory to research, suggesting a need for further outreach and education (Weaver et al., 2022).

Question: Are coyotes adapting to the urban environment of Culver City by changing their diets with a focus on domesticated cats?

Hypothesis: Coyote populations are moving towards Culver City to explore alternative forms of sustenance through domesticated cats and trash since their typical sources of prey have depleted.

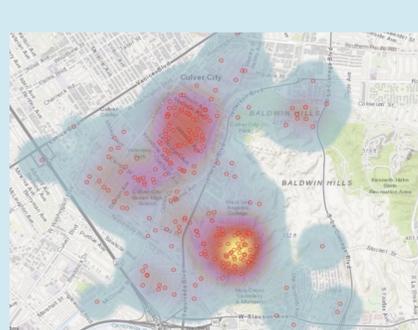


Figure 1: Density plot of cumulative Culver City coyote sightings from 2019-2021 (LMU CUREs).



Figure 2: Coyote feasting on a rabbit pictured from Camera 21.

Methods

Camera Trap Analysis: Thirty cameras were placed throughout Culver City around areas with the highest amount of reported coyote sightings from December 2019 to December 2021.

- Carlson Park and Marycrest Manor areas with greatest density surrounding their adjacent neighborhoods
- Nearly 2 million photos collected
- Recorded location and time of day the coyote and cat photos were taken

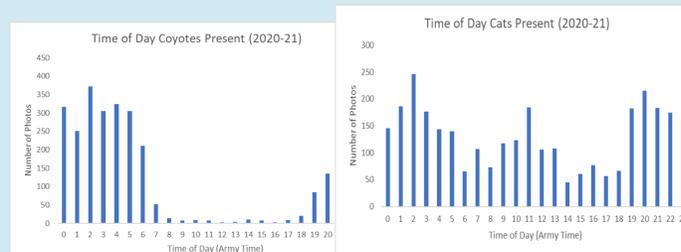
Scat Analysis: From June to December 2021, scat samples were obtained from the coyote pack located at Marycrest Manor in Culver City, CA.

- Heat the sample collections at 130°C for 24 hours
- Place samples in panty hose and wash through portable washing machine
- Dried scat dissected for animal hairs
- Observed under light microscope at 100X
- Identify animal hair and record findings

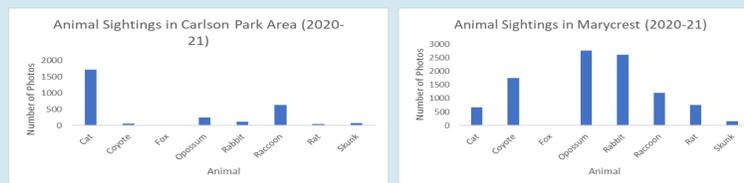
Public Surveying: Held online survey from February to April 2022 to assess public's perception and knowledge of, and interactions with, coyotes.

- Qualtrics survey software implemented
- Forms of outreach online involved: Culver City coyote page, GovDelivery, NextDoor, and social media of City (Instagram, Twitter, and Facebook)
- Physically advertised on Culver City buses and in-person at parks, City Hall, and Culver City Town Plaza.
- 377 responses completed

Data



Figures 3 & 4: Number of photos taken per hour in 2020-2021 for coyotes (left) and cats (right).



Figures 5 & 6: Number of photos captured per neighborhood in 2020-2021.

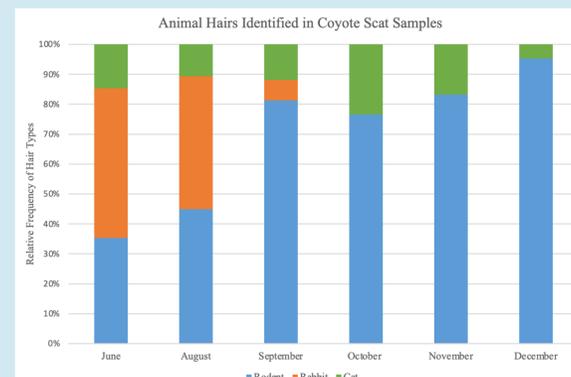


Figure 7: Frequency of types of animal hairs (N=3) analyzed in the Marycrest Manor coyote scat samples collected over a six-month period between June 2021 to December 2021.

Table 1: Responses to statements regarding resident's knowledge and opinions about coyotes.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I understand coyote behavior and activities.	10%	12%	14%	42%	22%
I know where coyotes frequent in Culver City.	16%	14%	17%	39%	14%
Coyotes should be allowed in Culver City.	27%	13%	22%	17%	22%

Results

- Spatial and temporal data from cats were recorded and found to be in high overlap to that of coyotes. These data are in sharp contrast to findings in other cities. The results suggest an increased risk of predation on cats.
- During periods of drought, rabbits become less of a primary food source, and a higher frequency of cat hairs are recorded in coyote scats.
 - Cats in diet increased to nearly 20% in October.
 - More extreme scavenging of food by the coyotes.
- Social surveys showed that 64% of respondents agreed that they understood coyote behavior and activities, and 53% agreed that they know where coyotes frequent.
 - Perceived knowledge contradicts previous research and our findings.

Discussion

- This longitudinal study is part of a broader effort toward achieving a greater understanding of coyote ecology and management.
- Domesticated cats have been incorporated into the diets of Culver City coyotes (Fig. 7).
- The impact of drought likely resulted in a shift in prey preference.
- Having a broad comprehension of coyote ecology helps to take prudent and preventive measures for future encounters.
- Managers must use multi-faceted outreach approach to educate residents.
- Educational materials produced by CUREs and programs such as *Urban Wildlife EcoLab* for K-12 curriculum to reduce human-animal conflict are freely available from our Center.
- Future experiments: Analyze how local approaches to optimize coyote management and education have changed resident stakeholder knowledge and perceptions.

Literature Cited

- *Coyote Management*. (2022). City of Culver City.
- *Culver City Coyote Management Project Update from LMU Center for Urban Resilience*. (February 16, 2022). LMU Center for Urban Resilience.
- Larson, Rachel N., Justin L. Brown, Tim Karels, and Seth P. D. Riley. *Effects of Urbanization on Resource Use and Individual Specialization in Coyotes (Canis Latrans) in Southern California*. Edited by Marco Apollonio. *PLOS ONE* 15, no. 2 (February 5, 2020): e0228881. DOI: 10.1371/journal.pone.0228881

Acknowledgements

- We would like to thank the LMU Center for Urban Resilience for the support of the mentors and the resources they've provided us.
- Special thanks also to the City of Culver City and Annenberg Pet Space for their generous funding toward our research.