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Diet Analysis of Scat from Coyote Pack in Culver City

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Abstract

Culver City's residential and recreational areas have experienced more frequent encounters with native wildlife in recent years. The increase in these interactions with the city's population and coyotes (*Canis latrans*) in particular have sparked interest in understanding why these canids have habituated to urban environment. A possible hypothesis for this occurring could be that the coyotes' diet has evolved to prey upon domesticated cats, which are also highly prevalent in urban areas. A dry fecal analysis has been developed to quantify how often the coyotes have incorporated cats into their diet. To track the consistency of their diets, we collected scat samples from one pack for a year period, dried them, and dissected them. We then observed animal hairs discovered in those samples via light microscopy at 100X magnification. We identified animal hair based on its structural characteristics such as the medulla, cortex, pigment granules, and the cuticle. Understanding seasonal patterns and contents in coyote diets will better inform City officials to create coyote management programs and provide residents with information that will help them better protect their pet.

Introduction

Over the past few decades, more and more previously rural areas, especially in Southern California, have been restructured into more concentrated urbanized territories. With this, came the increasing influence of anthropogenic stressors on neighboring wildlife habitats including that of the coyotes. Naturally, the coyotes have tried to adapt to these changes of their ecosystem over the past few years. There have been recent reports from the city's population experiencing unwanted coyote interventions to the point where they've been caught preying upon domesticated cats in the nearby neighborhoods. Previous studies have confirmed that urban areas provide diet substitutions for wildlife species like coyotes in the form of fruiting ornamental plants, trash, and domestic animals especially such as cats (Larson et al., 2020). A scat analysis must be performed to depict the coyotes' holistic diet and if their diet could vary over time (six months).

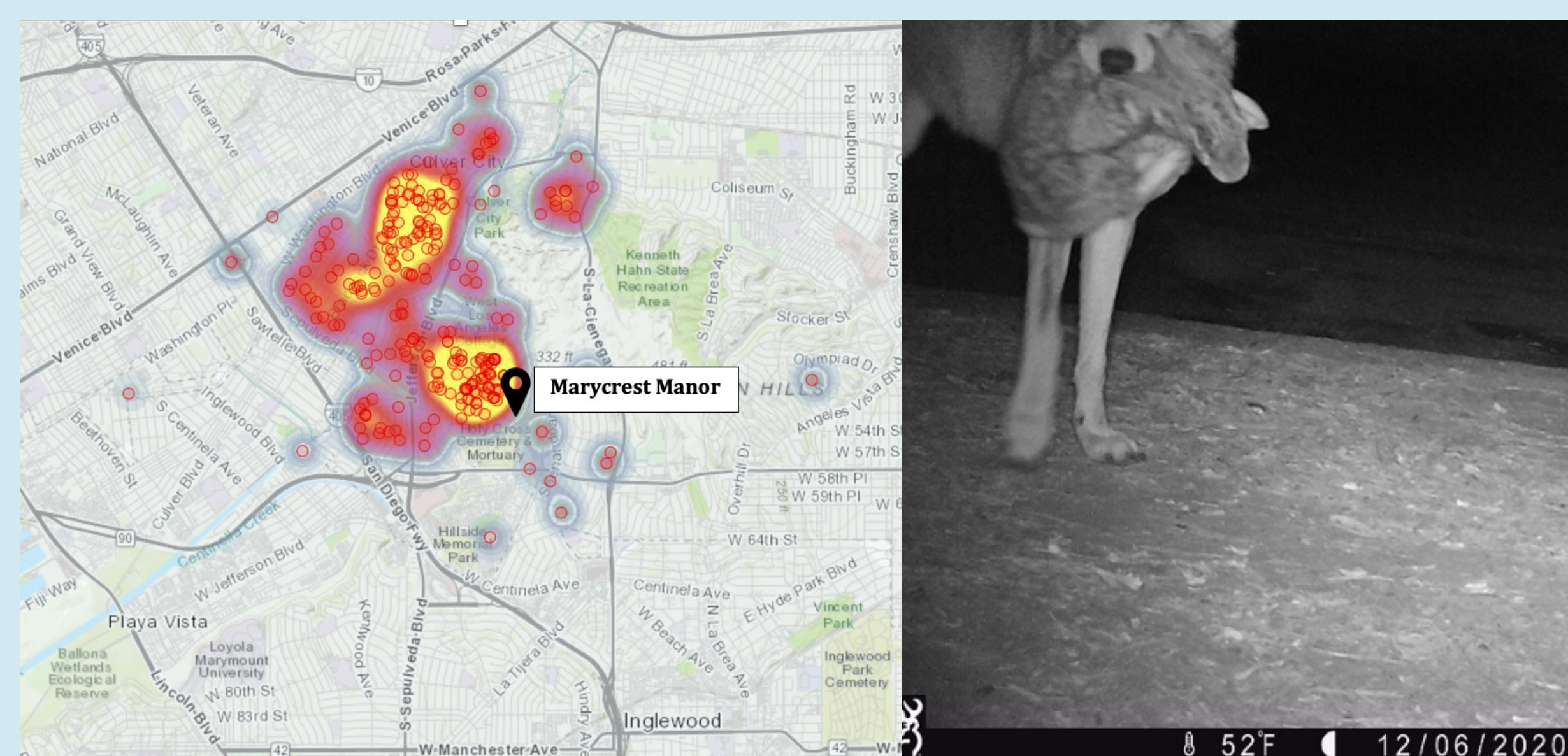


Figure 1: Density plot of cumulative coyote sightings last reported in December 2020 (LMU CUREs)

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

Question: What is the composition of the urban coyote diet in Culver City, and does it involve a high frequency of domesticated cats?

Hypothesis: The Marycrest Manor coyotes' diet is comprised of mostly smaller mammals or trash. It does not have a significant portion of domesticated cats.

Methods

From June to December 2021 (not July), scat samples were obtained from the coyote pack found roaming adjacent to Marycrest Manor in Culver City, CA; Latitude: 33° 59' 59.172" N, Longitude: 118° 23' 1.68" W.

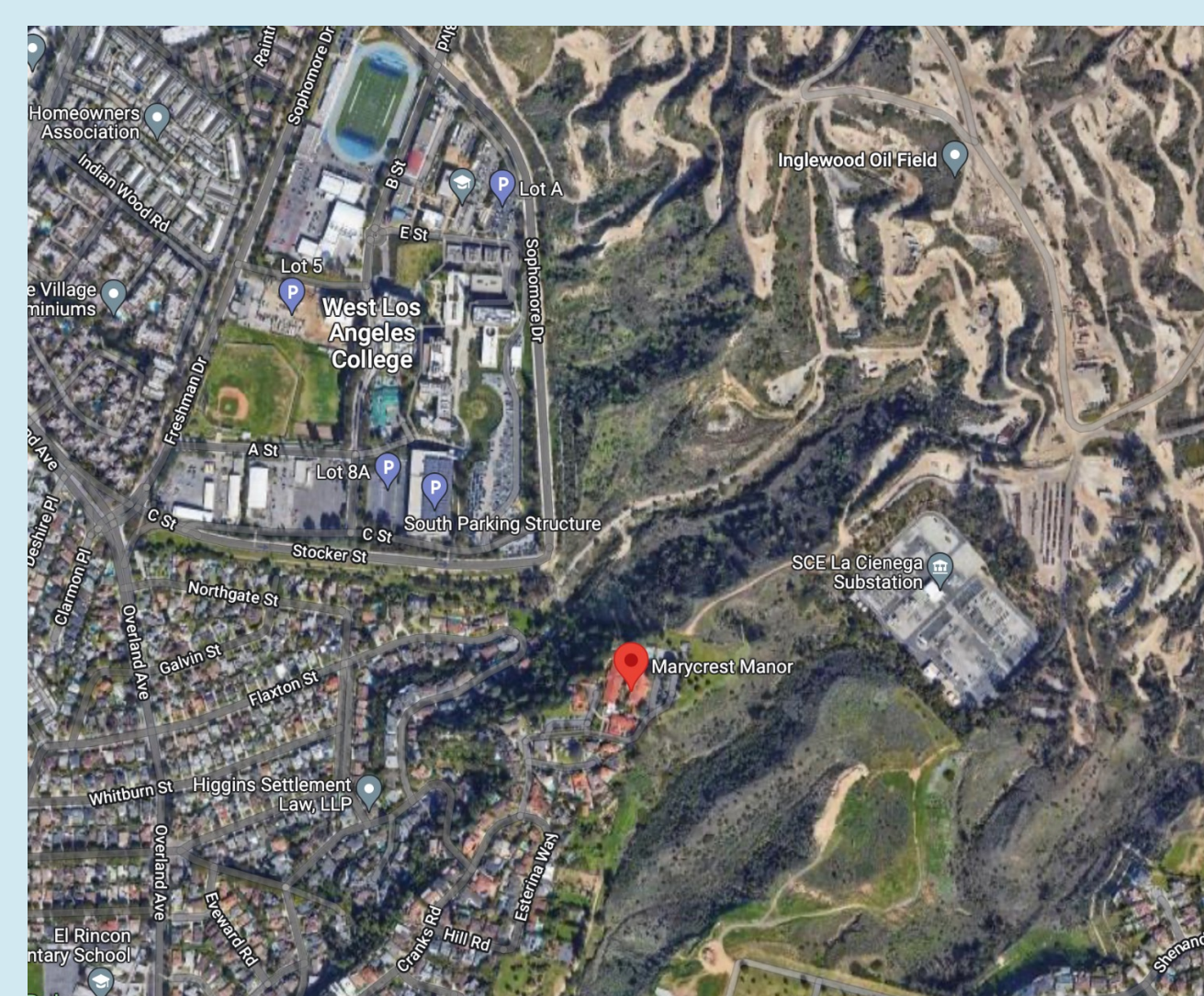


Figure 3: Map of terrain around Marycrest Manor (Google Maps)



Figure 4: Scat sample collected from coyote site

- 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



Figure 5: Light microscope at 100X magnification view of cat hair.

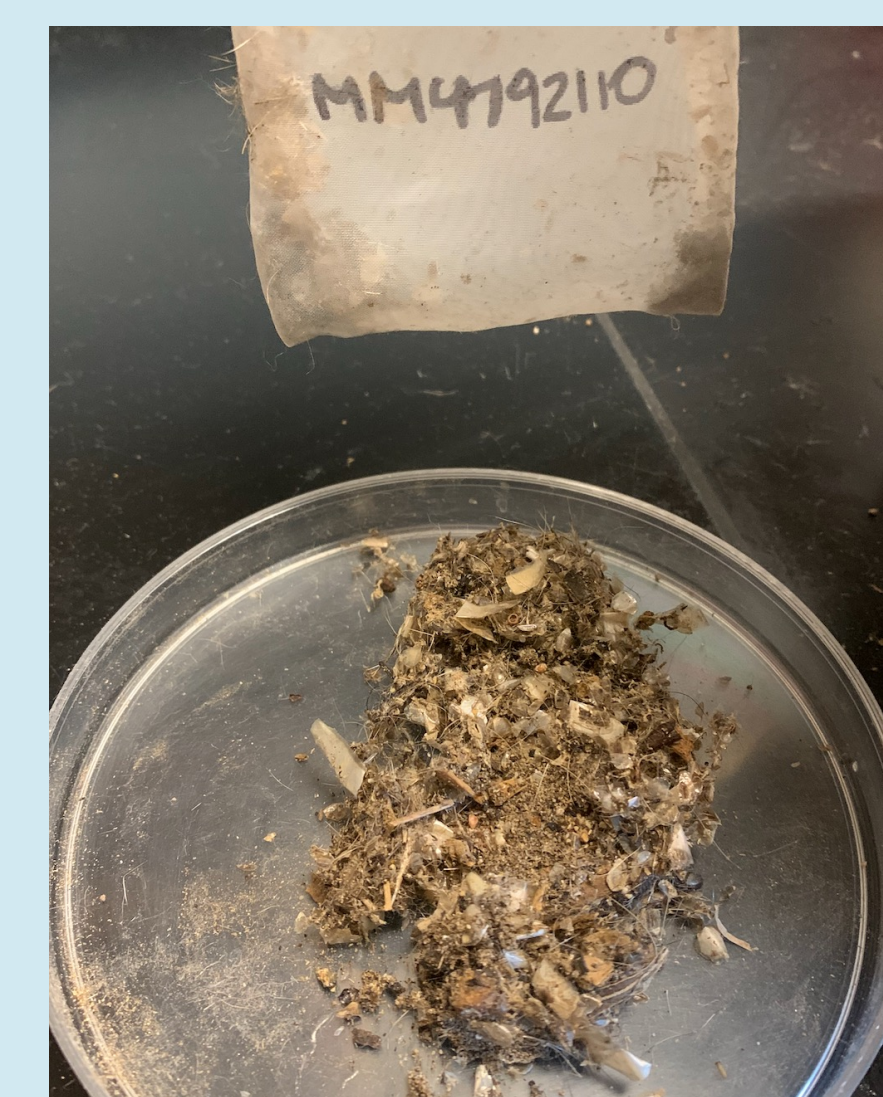


Figure 6: Dried scat sample MM4792110 from October 2021.

Data

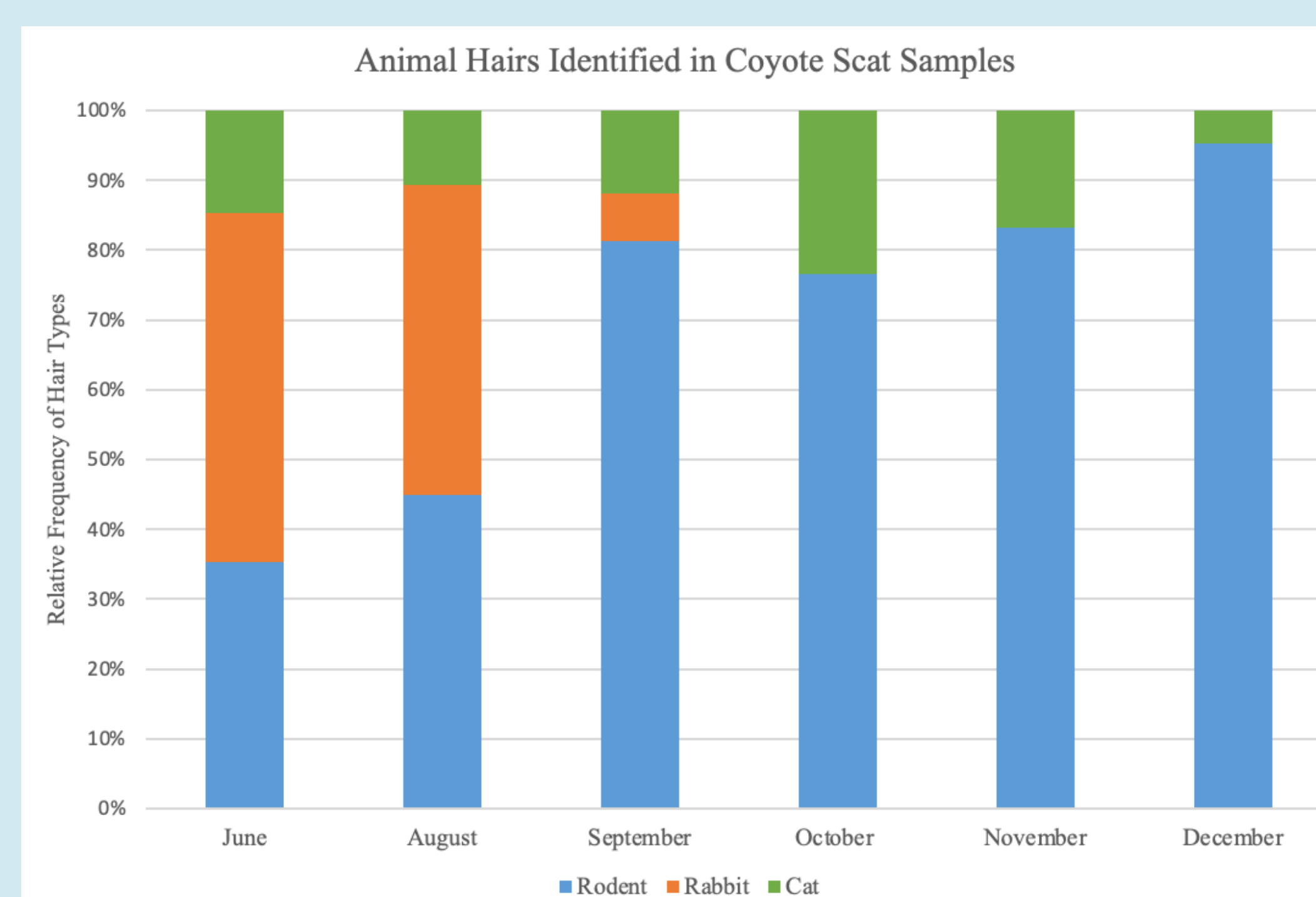


Figure 7: Frequency of types of animal hairs (N=3) analyzed in the Marycrest Manor coyote scat samples collected over a six-month period between June 2021 to December 2021.

Results

- From summer to fall, rodents (rats, mice, and squirrels) gradually make up much of the coyote's diet.
- Rabbits become less of a primary food source.
- Fall has the highest frequency of cat hairs recorded.
 - Fall is more "at-risk" time for domesticated cats to be out.
- More extreme scavenging of food by the coyotes.
 - Skunk hair found in a September sample.
- As it nears toward winter, coyotes' diets have relied on trash.
 - Less prey to hunt.
 - Snack wrappers and plastic packaging is discovered more frequently after October 2021 (Fig. 6).

Discussion

This longitudinal study of the Marycrest Manor pack's diet is a step closer toward achieving a greater understanding about coyotes and coyote management in order to learn how to live amicably with our natural wildlife. Unfortunately, our evidence confirms that domesticated cats have been preyed upon by coyotes as depicted by last year's data (Fig. 7). This is most likely due to the drastic change of the coyotes' environment over the years and as a result they've adapted by hunting this new prey. These types of cats have evolved into trained pets instead of feral animals but are groomed to be less defensive. We have committed to this research to ensure that pet owners are aware of this and take precautions to avoid intervening with the coyote population.

If Culver City residents visit the culvercity.org page, there are a multitude of articles, surveys, and research projects dedicated to educating the public about the current coyote study and management programs taking place in their city. Having a comprehension of these specific coyote behaviors would provide Culver City with the necessary information to enact prudent and preventive measures in case of more coyote encounters.

In future experiments, we are interested in comparing the diets of several coyote packs in Culver City to see if it varies across other locations.

Literature Cited

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