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What influences movement of coyotes through Los Angeles?

UC scientists report that wealth, pollution and population density affect how coyotes move and adapt to urban areas.

by Pamela S. Kan-Rice and Mathew Burciaga

Coyotes are thriving in Los Angeles, even as more people crowd into the city and, worried for the safety of their children and pets, call for removal of the wild animals. Navigating around people, coyotes show up in a variety of places — busy neighborhoods, peaceful backyards, city streets and on sunny hillsides.

To help keep families and neighborhoods safer, Christine Wilkinson, a researcher at UC Santa Cruz and the California Academy of Sciences; Niamh Quinn, UC Cooperative Extension human-wildlife interactions advisor; and other University of California scientists embarked on a study to understand how coyotes move through cities like Los Angeles.

Wildlife experts used to think that coyotes simply follow natural features like water and plants. The study of coyote movement patterns, published recently in *Ecology Letters*, shows that human factors — such as wealth, pollution and population density — actually influence where coyotes roam.

“Coyotes in highly developed and polluted neighborhoods travel farther and explore more each day,” Quinn said. “This could mean they have to cover more ground to find food and shelter.”

The researchers monitored coyotes’ movements with GPS tracking collars.

“We found that coyotes and people are experiencing the same urban inequities, so it is important to design and redesign urban spaces that keep in mind everyone’s well-being,” Wilkinson said.

This research can be useful for city residents as well as for scientists and city planners.

“Seeing a coyote in an urban environment was very rare 15 to 20 years ago, whereas seeing one now is very common,” said Quinn, who is based at the UC South Coast Research and Extension Center in Irvine. She noted that individuals can use the information for their own safety.

“Knowing that coyotes avoid wealthier areas, but roam more widely in polluted neighborhoods, can help communities prepare for possible encounters,” Quinn said. “People who live near parks, railways or flood channels — common coyote travel routes — can take steps to protect pets and prevent conflicts.”

“Additionally, the study highlights how human actions, such as pollution and city development, affect

both wildlife and human health,” she added. “By creating cleaner, more connected urban spaces, we not only support local wildlife like coyotes, but also improve the quality of life for everyone who calls these urban communities home.”

Surprising discoveries about coyote behavior

The researchers found that coyotes behave differently depending on where they live in the city.

The scientists also found that coyotes tended to stay away from wealthier neighborhoods, moving more slowly when they did venture into them. “This was unexpected because wealthier neighborhoods usually have more greenery and wildlife,” Quinn said. “One reason might be that people in these areas are more likely to pay for coyote removal services.”

While roads, railways and flood channels may be barriers, they also act as pathways for coyotes, which moved differently depending on how dense these features were in their surroundings.

“Taken together, it’s safe to say that urban complexity and human disturbances can significantly shape coyote behavior,” said Wilkinson.

Collaring coyotes, collecting data

To study coyote movement, Quinn trapped 20 coyotes in the Los Angeles area and put collars on them. These collars contained GPS tracking devices that tracked the movements of the coyotes.

“Trapping coyotes in urban areas is very challenging,” said Quinn.

She and a team from the Los Angeles County Department of Agricultural Commissioner/Weights and Measures set traps for the wily canines and monitored the traps using cellular game cameras. When a trap was triggered, the cameras sent an alert to Quinn. Then the team — which included Curtis Eng, associate professor of zoo, exotic and wildlife medicine at the Western University of Health Sciences College of Veterinary Medicine — worked to sedate the animal and fasten a tracking collar around each coyote’s neck before releasing it.



A collared coyote overlooks downtown Los Angeles.
Photo: Johanna Turner.

The solar-powered GPS collars reported coyote locations at intervals ranging from 15 minutes to two hours.

By analyzing GPS data from the coyote collars and comparing it with maps of neighborhoods, roads and railways, the researchers learned how coyotes navigate the urban landscape. They also included census data and pollution reports to get a complete picture of how city life affects these animals.

“Our prior work focused heavily on biodiversity patterns in relation to legacies of residential segregation, implicating redlining as a potential contributor to variable species counts across cities,” said Christopher Schell, assistant professor in the UC Berkeley Rausser College of Natural Resources and the study’s senior author. “Our current study offers evidence of how coyotes and other wildlife are navigating cities by making far more complicated and integrated decisions based on the entire tapestry of urban conditions surrounding them.”

Human population density and development were found to be the strongest influences on coyote movement and habitat selection, according to their findings, while the distance to cemeteries and golf courses — where coyotes are often seen — was the weakest influence.

Bridging human and wildlife well-being

Wilkinson hopes the study can provide a holistic view of the influences of social–ecological features on wildlife connectivity in Los Angeles, as much of the data the authors used had historically been siloed across different fields. She hopes that urban planners will continue to center intracity connectivity for wildlife in their work, aiming to create designs that are thoughtfully tailored to the needs of both biodiversity and human well-being.

“People are exposed to the very same pollutants and burdens that these coyotes are exposed to,” she said. “Understanding those linkages between our well-being can really give us paths to consider when making big decisions for urban design and redesign.” [CA](#)

Funding for the project was provided by the Los Angeles County Productivity Investment Fund and by Schmidt Science Fellows, in partnership with the Rhodes Trust.

Read the full study, “Environmental Health and Societal Wealth Predict Movement Patterns of an Urban Carnivore”, at Ecology Letters: <https://doi.org/10.1111/ele.70088>.