# Feral cats avoid urban coyotes, are surprisingly healthy

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Cats that live outdoors in the city do their darnedest to steer clear of urban coyotes, a new study says.

The cats cause less damage to wildlife in urban green spaces, such as city parks and nature preserves, because of that dodging, the study suggests. And they live longer and are healthier than previously thought.

"Free-roaming cats are basically partitioning their use of the urban landscape. They're not using the natural areas in cities very much because of the coyote presence there," said the study's lead author, Stan Gehrt, associate professor of environment and natural resources at The Ohio State University.

"It reduces the cats' vulnerability to coyotes, but at the same time, it means the coyotes are essentially protecting these natural areas from cat predation," he said.

The study, which was published recently in the online journal *PLOS ONE*, is the first to show how coyotes and free-roaming cats share space and interact with each other in urban areas.

Gehrt and his colleagues monitored the health, home ranges, habitat selections and other characteristics of 39 feral and stray cats near six parks and nature preserves in greater Chicago. The Chicago area has some of the densest populations of coyotes ever recorded.

The scientists found that most of the cats shunned the urban coyotes' "core activity areas" – fragments of natural habitat within the city, as represented by the study's parks and nature preserves.

Instead, the cats restricted their own core activities to developed parts of the city, such as near homes and shops. Core activity areas are the areas within an animal's home range where the animal spends most of its time and concentrates most of its activities, including hunting.

"Coyotes essentially exclude cats from natural habitat fragments in cities either directly through predation or indirectly through the threat of predation," said Gehrt. "The cats avoid these areas."

Coyotes are known to prey on free-roaming cats, whether ferals, strays or pets, while free-roaming cats, on the whole, have been shown to kill great numbers of birds, small rodents and reptiles.

Both cats and coyotes can annoy city dwellers by howling at night, digging through trash and threatening pets. And both can pose a public health risk: Cats can spread a disease called toxoplasmosis; on rare occasions, coyotes have bitten humans.

The findings paint both animals in a more positive light, Gehrt said.

"Free-roaming cats aren't as diseased and short-lived as we often hear, and they're not as harmful to wildlife as some other studies have suggested, at least not in urban natural areas," he said.

For their part, coyotes provide a beneficial ecological service in urban natural areas by limiting the impact of cats, he said.

While urban coyotes often go into the developed parts of the city, such as streets and people's yards, those places aren't part of the coyotes' core

activity area, the study found.

"The way coyotes use developed areas is completely different from how cats use them," he said. "They're moving through those neighborhoods or commercial areas very quickly, using every bit of cover they can find, to get from one hunting area to another, whereas the cats are sticking as close to the buildings as they can."

In other words, the cats are trying to stay close to people; the coyotes are trying to duck them.

"What the coyotes are doing is totally amazing," Gehrt said. "They have to live in the urban matrix while avoiding people, which is pretty darn hard to do."

The new information paints a clearer picture of both animals' behavior in urban areas and may refine how park and wildlife officials manage them, he said.

But there's a caveat: The study didn't monitor the impact of cats on wildlife in the developed parts of the city.

"Even though we found that the cats' impact on urban natural areas was low, that doesn't mean that their impact would be low in the developed areas where they're spending a lot of their time," he said. "There's a potential strong impact by cats on systems outside of those natural areas, but monitoring that was beyond the scope of our study."

Coyotes in the study's six parks and nature preserves were already being monitored as part of the wider, long-term Cook County, Illinois, Coyote Project, which Gehrt has been conducting since 2000.

For this latest study, the researchers live-trapped free-roaming cats in or

near those parks and nature preserves. They recorded each cat's age, weight, fur coloration, body condition and other traits; took blood samples for later testing; fitted the adult and juvenile cats with radio collars for tracking their movements; and released all the cats at or near their capture sites.

Findings showed that most of the sampled cats were in good body condition, with only a few mostly minor health problems. Blood tests indicated, for example, that the cats had little exposure to feline immunodeficiency virus, also called FIV or feline AIDS, and to feline leukemia virus.

Cats that had been spayed or neutered were in even better shape.

"There's definitely a need to sterilize (free-roaming cats) to control their overall population, and in some cases it may help them maintain better body condition," Gehrt said. "That's another finding of this study."

In fact, only 20 percent of the cats died during the two-year study, with vehicle strikes and predation – probably by coyotes, he said – the main causes.

Based on that survival rate, coyotes preying on feral cats "doesn't happen as much as people think it does," although the predation rate on indoor-outdoor pet cats may be greater, he said.

The study cats' survival rate surprised him, he added.

"I thought it would be much lower, whether because of the traffic we have in the region, which is pretty intense, or because the coyote densities are so high," he said. "The assumption would be that it would be impossible for cats to survive under that pressure. But they do."

In all, the sampled cats lived about as long as the area's coyotes, longer than the foxes and skunks, and were second only to the raccoons.

"The condition of the cats was generally much better than what we expected," he said. "Their overall health and ability to survive in the landscape is greater than what people think."

**More information:** dx.plos.org/10.1371/journal.pone.0075718

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