

Domestic cats, and wild bobcats and pumas, living in same area have same diseases

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Mountain lion photographed by a motion-activated camera, Uncompahgre Plateau, Colorado. Credit: Jesse Lewis, Colorado State University

(PhysOrg.com) -- Domestic cats, wild bobcats and pumas that live in the same area share the same diseases.

And [domestic cats](#) may bring them into human homes, according to results of a study of what happens when big and small cats cross paths.

Initial results of the multi-year study are published today in the scientific journal [PLoS One](#) by a group of 14 authors.

The joint National Science Foundation (NSF) and National Institutes of Health (NIH) Ecology and Evolution of Infectious Diseases (EEID)

Program funded the study. Scientists at Colorado State University and other institutions conducted the research.

It provides evidence that domestic cats and wild cats that share the same outdoor areas in urban environments also can share diseases such as Bartonellosis and Toxoplasmosis. Both can be spread from cats to people.

"Human-wildlife interactions will continue to increase as human populations expand," said Sam Scheiner, program director for EEID at NSF.

"This study demonstrates that such interactions can be indirect and extensive," said Scheiner. "Through our pets we are sharing their diseases, which can affect our health, our pets' health and wildlife health."

The study looked at urban areas in California and Colorado. Its results show that diseases can spread via contact with shared habitat.

All three diseases the scientists tracked--Toxoplasmosis, Bartonellosis and FIV, or feline immunodeficiency virus--were present in each area.

The research also demonstrates that diseases can be clustered due to urban development and major freeways that restrict animal movement.

"The results are relevant to the big picture of domestic cats and their owners in urban areas frequented by wild cats such as bobcats and pumas," said Sue VandeWoude, a veterinarian at Colorado State and co-leader of the project.

"The moral of this story is that diseases can be transmitted between housecats and wildlife in areas they share, so it's important for pet

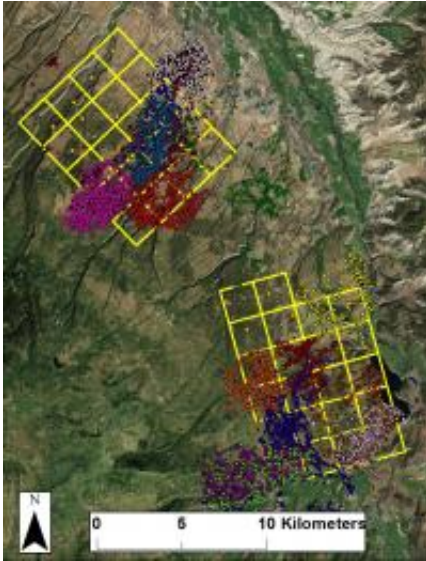
owners to keep that in mind."



Bobcat with cottontail rabbit on a motion-activated camera at the Colorado Front Range. Credit: Jesse Lewis, Colorado State University

The researchers followed wild and domestic cats in several regions of Colorado and California to determine whether the cats had been exposed to certain diseases.

The effort includes data from 800 blood samples from felines of all sizes, including 260 bobcats and 200 pumas, which were captured and released, and 275 domestic cats.



GPS data from bobcats on the Uncompahgre Plateau, Colorado. Credit: Jesse Lewis, Colorado State University

"As human development encroaches on natural habitat, wildlife species that live there may be susceptible to diseases we or our domestic animals carry and spread," said Kevin Crooks, a biologist at Colorado State and co-leader of the project.

"At the same time, wildlife can harbor diseases that humans and our pets can in turn get. Diseases may be increasingly transmitted as former natural areas are developed."

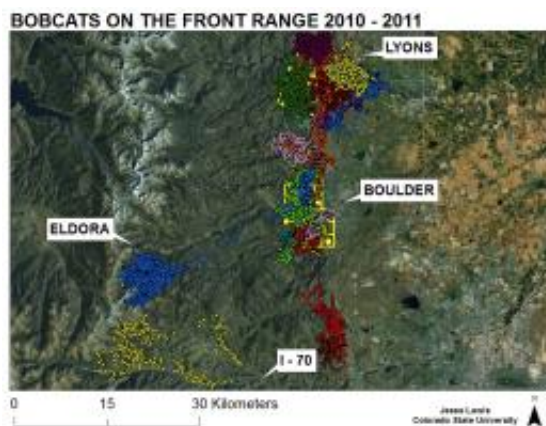
The project also looked at whether bobcats in southern California were segregated into different populations by major highways.

By analyzing genetic and pathogen data, the scientists found that bobcats west or east of Highway 5 near Los Angeles rarely interbred, but that the bobcats did cross into each other's territory often enough to share diseases such as FIV.

"The evidence suggests that bobcats are moving across major highways, but are not able to easily set up new home territories," said VandeWoude.

"They can, however, spread diseases to one another when they cross into each other's territories. This could result in inbreeding of the bobcats trapped by urban development and end up in the spread of diseases."

VandeWoude and Crooks say that the results don't necessarily mean that all domestic cats that are allowed to roam outdoors are at a high level of risk. They plan further studies to better assess that risk.



GPS data from bobcats on the Colorado Front Range. Credit: Jesse Lewis, Colorado State University

It does mean that domestic cats and wild cats who share the same environment--even if they do not come into contact with each other--also can share diseases.

The findings show that pumas are more likely to be infected with FIV than bobcats or domestic cats. While FIV cannot be transmitted to

people, it is highly contagious among felines.

The rate of Toxoplasmosis was high in pumas and bobcats across Colorado and California.

Toxoplasmosis is caused by a parasite that, when carried by healthy people, has no effect but that can cause complications for infants and adults with compromised immune systems.

Cats only spread Toxoplasmosis in their feces for a few weeks following infection with the parasite. Like humans, cats rarely have symptoms when first infected.

Bartonellosis is a bacterial infection also called cat scratch disease. If someone is scratched by a cat with Bartonellosis, the scratch may become infected, but the infection is usually a mild one.

Other studies underway include a fine-scale analysis of urban landscape features that affect [disease](#) incidence; evaluation of pathogen exposure and transmission in bobcats; and a survey of domestic cat owners about their attitudes toward risks for pets from wildlife.

Large-scale projects looking at movement patterns of [bobcats](#) and pumas in Colorado, and a motion-activated camera analysis of human and wildlife interactions along [urban areas](#), are also in progress.

The take-home message, the researchers say, is that life in the wild may not be so wild after all.

Provided by National Science Foundation

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