

# Cats that are allowed to roam can spread diseases to humans and wildlife

June 13 2022, by Amy Wilson and Scott Wilson

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Credit: AI-generated image ([disclaimer](#))

For decades, scientists have warned that ecologically destructive activities increase the risk of [diseases spilling over between wildlife and human populations](#). Examples of these drivers include climate change, [habitat loss, wildlife trafficking](#), environmental contamination, expansion of anthropocentric activities and invasive species introduction.

Domestic animals also contribute to the movement of diseases between species. Free-roaming [domestic animals](#), like [cats](#), can facilitate the spread and transfer of diseases, impacting both humans and [wildlife](#).

## Infectious parasites

Free-roaming cats—which include feral, stray and house cats—present a particularly compelling case because of their large population sizes and their central role in the life cycle of a parasite called *Toxoplasma gondii* (*T. gondii*) that infects both wildlife and humans. Most people may have only heard of toxoplasmosis from their doctors during a pregnancy or [in articles on "brain-altering" parasites](#).

However, *T. gondii* is one of the most common zoonotic parasites globally and is estimated to affect [about 30 to 50 percent of the global human population](#). *T. gondii* infections can have [severe and life-threatening consequences](#); especially for immunocompromised people and infants infected during pregnancy.

*Toxoplasma gondii* forms a permanent resting tissue cyst in the muscle or nervous tissue of a host, so even healthy infected people are impacted. Chronic toxoplasma infections have been linked with illnesses including degenerative neurological diseases, schizophrenia and [brain cancer](#).

Domestic cats or wild felids—like lions, jaguars or cougars—[intermittently excrete millions of \*T. gondii\* eggs \(called oocysts\)](#) into the environment [through their feces](#). These oocysts persist under favorable conditions for years in water and soil, [with the capacity for long-distance dispersal](#).

If any warm-blooded animal ingests an oocyst, it can become infected with *T. gondii*. This can happen if a person or animal ingests oocysts in contaminated water or food, or through eating another animal that has

already become infected.

## Spreading diseases

Although both wild felids and domestic cats are sources of toxoplasma, domestic cats outnumber wild felids by several orders of magnitude. We recently tested whether mammals living in environments with greater densities of domestic cats would show higher infection rates of *T. gondii*.

While there are no global data sets showing domestic cat densities, domestic cats are closely associated with humans, and therefore, measures of human population density can act as a surrogate for the density of free-roaming cats. Using data from over 200 studies, we demonstrated that indeed, [wildlife living in areas of higher human density](#) had higher infection rates of *T. gondii*.

We concluded that this higher infection rate occurred due to a combination of two phenomenon: high densities of free-roaming domestic cats producing infected feces, and the loss of natural habitats. Natural ecosystems have important roles in filtering, sequestering and [removing \*T. gondii\*](#) and [other pathogens](#) from human, livestock and wildlife exposure pathways. Breaking the lifecycle by preventing cats from hunting and landscape restoration are key preventative measures.

If wildlife have an increased risk of exposure to *T. gondii* in certain areas, then humans and livestock can also be unintended targets. Public health researchers have shown this repeatedly by [sampling soil](#), [vegetable gardens](#) and [playgrounds](#).

## Rabies risk

Rabies is another disease whose risk is increased by free-roaming cats. In the United States, cats are [the most common rabies positive domestic species](#), with cats posing [two-and-a-half times the rabies exposure risk compared to bats in Pennsylvania](#). In Canada, we recently found similar public health concerns of free-roaming cats when we [examined patterns of rabies submissions of bats in Canada](#).

In Canada, free-roaming cats were associated with 10 times more bats being submitted for rabies testing compared to indoor cats. In fact, in our dataset, there were five records of free-roaming cats bringing bats into the house that subsequently were found to be rabies positive. This hunting activity by cats is obviously dangerous for people in the household, and is a very simple explanation for cases of cryptic rabies infections (rabies cases without an identifiable source).

This risk is directly proportionate to the frequency of free-roaming cats killing bats, which is unfortunately common. Single cats have been known to [kill a hundred bats in a week](#).

In our dataset, one free-roaming cat killed nine endangered little brown bats in one month, with another record of a cat killing 14 bats in a single evening. Many bat populations have undergone severe declines, especially due to [an introduced fungal disease](#). Bats are [long-lived with low reproduction](#), so this additional source of mortality can severely impact bat populations.

Since cats only bring home [20 percent of what they kill](#), prey returns and rabies submissions only provide a tiny glimpse of the true cat predation rates. It is therefore apparent that although natural rabies prevalence in bats is low—[less than one percent](#)—in areas with cats killing large numbers of bats, rabies exposure risks will increase.

## **Protecting health and wildlife**

There is broad consensus among [veterinarians](#), [ecologists](#), [public health experts](#) and [animal rights activists](#) that free roaming by [domestic cats](#) is detrimental for feline welfare, wildlife welfare, conservation and human health. Wildlife have the same capacity for distress and pain as domestic animals, and perform irreplaceable ecosystem services with [tangible economic benefits](#), making their predation unjustifiable from an ethical or economic perspective.

Free-roaming cats suffer from increased mortality through [traumatic injury, disease, neglect and abandonment](#). This marginalization of cats needs to be replaced with [progressive enrichment resources](#) and [responsible management that does not foster an inhumane and biased disregard](#) for feline welfare standards, wildlife welfare, conservation and human health.

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