



WCS Fact Sheet: BIG CATS, SARS-COV-2 AND COVID-19.

Overarching position

COVID-19 is a disease caused by the coronavirus SARS-CoV-2. Although COVID-positive people can infect tigers and lions in zoos by close contact involved with caring for them, cats are not easily infected, and SARS-CoV-2 is not known to occur in any population of any wild cat species in nature. It is extremely unlikely that wild cats can transmit the virus that causes COVID-19 to humans.

COVID-19 in felids.

COVID-19 is a disease caused by the coronavirus SARS-CoV-2. A single confirmed case from the Wildlife Conservation Society's Bronx Zoo in New York City confirms that tigers can contract COVID-19 from close contact with presumed COVID-19 positive humans in a zoo setting. Another three tigers and three lions in the Bronx Zoo developed mild symptoms and were assumed to also have been infected. All infected or presumed infected animals appear to be recovering at the time of writing.

Cats are not easily infected by this coronavirus. There are only two documented cases of SARS-CoV-2 positive domestic cats (and two in domestic dogs); in all four cases, the pets were kept by and in close contact with positive and shedding owners. All the animals involved were asymptomatic or had mild symptoms and recovered (one old dog died of unrelated causes). In experimental efforts undertaken by Chinese researchers to infect domestic cats, very high virus loads were required for sero-conversion (Shi et al 2020). Furthermore, more than 5000 cats, dogs and horses were screened in infected areas in 17 countries by real-time PCR. None were found positive, further emphasizing natural infection is very rare in cats (<https://www.idexx.com/en/about-idexx/covid-19-resources/>).

The extremely low putative infection rates in domestic cats suggests that felids are poor hosts for the SARS-CoV-2 virus and that it is unlikely to become established in wild cats in nature.

COVID-19 as a potential threat to big cats

Given the apparent low susceptibility of felids to the virus, the mild clinical signs displayed by infected or presumed infected tigers and lions at the Bronx Zoo, and the low likelihood that it can become established in wild cat populations in nature, it is unlikely that COVID-19 represents a threat to cats in the wild.

Potential transmission to humans by big cats

There is no evidence that big cats can transmit the virus to people, and the future likelihood for transmission by big cats to humans is extremely low, based on the following:

1. The current spread of COVID-19 is a result of human to human transmission. Outside the Wuhan market event, there is no known case of a person being infected with COVID-19 by

animals, including by pet dogs or cats. The big cats in the Bronx Zoo exhibiting symptoms did not infect people.

2. COVID-19 is unknown from any wild cat population in nature, despite co-occurring with (and possibly preying upon) the presumed origin of the virus, thought to be horseshoe bats. Given the lack of occurrence in nature and the low apparent susceptibility of felids to infection, wild cats are very unlikely hosts for the SARS-CoV-2 coronavirus.
3. Transmission of coronavirus relies on exchange of aerial droplets within six feet or, less commonly, passive transmission from surfaces. In a natural setting, even an infected wild cat is physically unable to transmit the virus provided that usual, sensible distance is maintained, and it is left unmolested.

Resources and references

WCS COVID-19 policy

<https://www.wcs.org/get-involved/updates/wcs-issues-policy-on-reducing-risk-of-future-zoonotic-pandemics>

WCS COVID-19 resources

<https://www.wcs.org/get-involved/updates/a-primer-on-the-coronavirus>

World Organisation for Animal Health, Q&A on COVID-19

<https://www.oie.int/en/scientific-expertise/specific-information-and-recommendations/questions-and-answers-on-2019-novel-coronavirus/>

European Association of Zoo & Wildlife Veterinarians COVID-19 FAQ

https://cdn.ymaws.com/www.eazwv.org/resource/resmgr/files/transmissible_diseases_handbook/5th_ed_transmissible_diseases_handbook/chapters/Covid19_FAQ_v5_7_April_2020.pdf

(for the most current version, search for “Covid” at https://www.eazwv.org/page/inf_handbook)

Shi et al., 2020, Susceptibility of ferrets, cats, dogs, and other domesticated animals to SARS–coronavirus 2 <https://science.sciencemag.org/content/early/2020/04/07/science.abb7015>