

COVID-19, caused by infection with SARS-CoV-2, is a human disease which most likely emerged from an animal source and through widespread human-to-human transmission became a pandemic. As of 30 November 2021, over **270 million** confirmed human cases have been reported worldwide, with more than **5 million** human deaths¹. The nature of this new zoonotic virus, together with its widespread distribution and the susceptibility of some animal species to infection, manifests in animal infections arising from close contact between people and animals. Conversely, there is also evidence that, for some animal species, close contact with infected animals can represent a potential source of infection in humans². This report is a monthly update of the global situation of the report of SARS-CoV-2 in animals, with a special focus on the new reports submitted to the OIE in the last month.

Global situation since the beginning of the pandemic

The worldwide geographical distribution of SARS-CoV-2 outbreaks in animals reported to the OIE is shown in Figure 1. The first case of SARS-CoV-2 in animals was officially reported to the OIE by Hong-Kong (SARC) on 29 February 2021 in a dog.

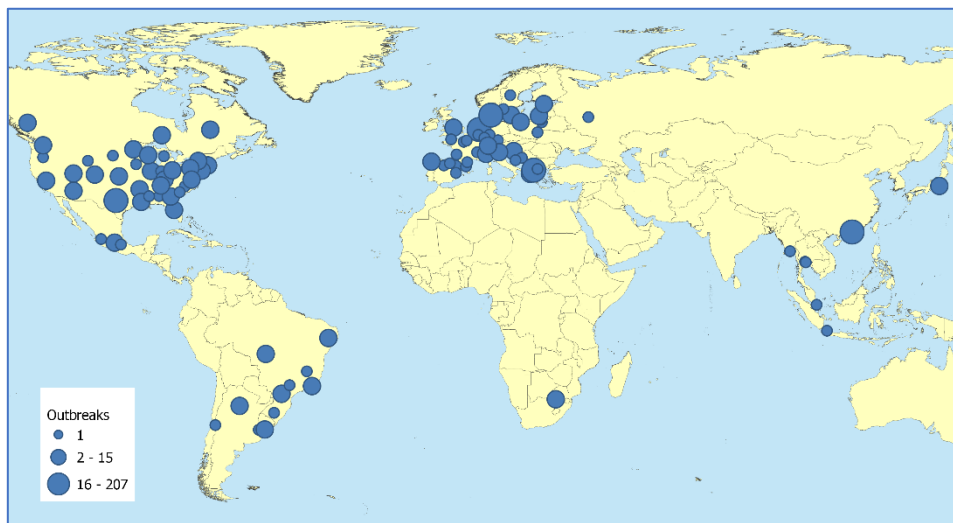


Figure 1. Worldwide distribution of SARS-CoV-2 outbreaks in fifteen animal species reported to the OIE (as of 30 November 2021). Note that dot size on the map is proportional to the number of outbreaks reported.

Table 1 shows the global distribution of animal infections with SARS-CoV-2. Thirty countries in the Americas, Africa, Asia, and Europe have reported the occurrence of the disease, in fifteen different animal species (cats, dogs, mink, otter, pet ferrets, lions, tigers, pumas, snow leopards, gorillas, white-tailed deer, fishing cat, Binturong, South American coati, and spotted hyena).

Table 1. Number of outbreaks (n=603) reported worldwide, by species and region (as of 30 November 2021).

Region	Species														
	Cat	Dog	Mink	Otter	Pet ferret	Lion	Tiger	Puma	Snow leopard	Gorilla	White-tailed deer	Fishing cat	Binturong	Coatimundi	Spotted hyena
Africa						Yes		Yes							
Americas	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Asia	Yes	Yes				Yes	Yes								
Europe	Yes	Yes	Yes		Yes	Yes	Yes								

¹ <https://coronavirus.jhu.edu/map.html>

² https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.23.2001005#html_fulltext

Update during last month (01/11/2021 - 30/11/2021)

During the last month **6 outbreaks** have been reported or updated by **4 countries (Croatia, Singapore, United Kingdom and United States)** in **3 animal species** (dog, lion, spotted hyena). The recent distribution of outbreaks is reported in Figure 2.



Figure 2. Worldwide recent distribution of SARS-CoV-2 outbreaks reported to the OIE (01/11/2021 - 30/11/2021).

EPIDEMIOLOGICAL COMMENTS

Summary of the global situation and recommendations

While the main driver of community and international spread in the current pandemic is human to human transmission, animal cases of infection with SARS-CoV-2, though still only occasional occurrences, continue to rise. Currently, **603 outbreaks** in animals have been reported globally, affecting **14 species** in **31 countries**. Some countries have experienced a high prevalence of outbreaks in mink farms, and variant strains have now been identified in mustelids. As infection with SARS-CoV-2 is an emerging disease, the OIE strongly encourages Members to report through WAHIS the occurrence of any cases in animals that comply with the case definition provided in the OIE guidelines³.

Relevant changes in disease situation during the period:

- SARS-CoV-2 was reported through 1 Immediate notification and 1 Follow-up report by **Croatia** in **dogs** and **a lion**
- SARS-CoV-2 was reported through 1 Immediate notification and 2 Follow-up reports by **Singapore** in **lions**
- SARS-CoV-2 was reported through 1 Immediate notification by **United Kingdom** in **a dog**
- SARS-CoV-2 was reported through 1 Follow-up report by **United States of America** in **a spotted hyena**.

Relevant epidemiological comments from countries:

- **Croatia (dogs and lion affected):** "SARS CoV-2 confirmed in two lions in Zagreb Zoo Park. In animals respiratory clinical signs were observed."
- **Singapore (lions affected):** "SARS-CoV-2 RNA was detected via RRT-PCR from samples taken from these lions with a known history of exposure to staff infected with COVID-19. The lions are part of a zoological collection and are kept in enclosures." and "Virus genome sequencing indicates that the SARS-CoV-2 virus in this outbreak is the Delta variant".
- **United Kingdom (dog affected):** "There are no other pets in the household. The case is considered resolved. Conclusions: There is sufficient evidence that the dog was infected with SARS-CoV-2. However, there is insufficient evidence to demonstrate if the dog was clinically affected by the virus. Origin of the infection considered likely to be direct contact with persons diagnosed with COVID-19 in the same household. Nota bene: The outbreak location used is that of the National Reference Laboratory, APHA Weybridge for data protection reasons."

³ https://www.oie.int/fileadmin/Home/MM/A_Sampling_Testing_and_Reporting_of_SARS-CoV-2_in_animals_3_July_2020.pdf

- **United States of America (spotted hyena affected):** *Update 8 November 2021 Colorado (CO): Update – Two Spotted hyenas (Crocota crocuta) at a previously reported zoo were confirmed positive for SARS-CoV-2 at NVSL, result have been updated in the specific outbreak and diagnostic sections of this report. This report represents a new species with detection of a positive SARS-CoV-2 for the U.S., but not a new state. There is a single SARS-CoV-2 event occurrence in the United States of America, however, for WAHIS technical reasons, any new outbreaks in the country will be reported in this new event and not in the one first reported in April 2020. For more details about SARS-CoV-2 testing of animals in the United States, see: <https://www.aphis.usda.gov/aphis/dashboards/tableau/sars-dashboard>.”*

Other relevant information during the period (OIE documents, relevant news, upcoming webinar or conferences)

- OIE Ad hoc Group on COVID-19 at the Animal-Human Interface - https://old.oie.int/fileadmin/Home/MM/14th_call_AHG_COVID-19.pdf
- Research on sheep susceptibility - [Sheep at low-risk for infection with SARS-CoV-2 \(news-medical.net\)](#)
- Rodents role in transmission of coronaviruses - [Los roedores podrían ser transmisores asintomáticos de coronavirus similares al SARS - Infobae](#)
- White-tailed deer infection with SARS-CoV-2 virus - [Genome Sequencing Reveals Widespread COVID-19 Infection in Deer \(laboratoryequipment.com\)](#)
- Livestock susceptibility to SARS-CoV-2 virus - [A study of livestock exposure to the SARS-CoV-2 virus \(news-medical.net\)](#)