

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 September 2021**, around **234 million** confirmed human cases have been reported worldwide, with more than **4.7 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.

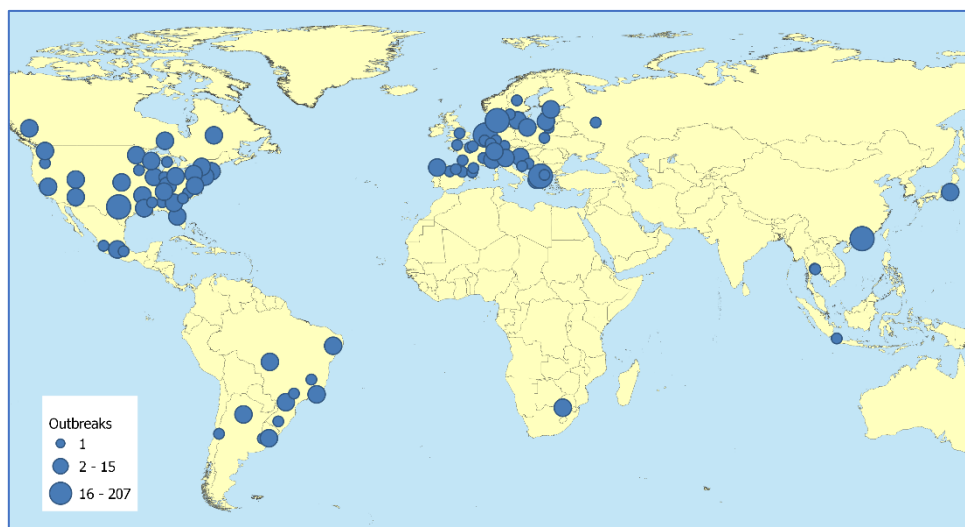


Figure 1. Worldwide distribution of SARS-CoV-2 outbreaks in twelve animal species reported to the OIE (as of 30 September 2021). Note that dot size on the map is proportional to the number of outbreaks reported.

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 twelve different animal species (cats, dogs, mink, otter, pet ferrets, lions, tigers, pumas, snow leopards, gorillas, white-tailed deer and amur leopard).

Table 1. Number of outbreaks (n=584) reported worldwide, by species and region (as of 30 September 2021).

Region	Species											
	Cats	Dogs	Mink	Otter	Pet ferrets	Lions	Tigers	Pumas	Snow leopards	Gorillas	White-tailed deer	Amur leopard
<i>Africa</i>						1		1				
<i>Americas</i>	67	69	20	2	1	3**	10 ⁺	2	2 ⁺	2	1	⁺
<i>Asia</i>	11	16					1					
<i>Europe</i>	24	7	340		1	2*	1*					
TOTAL	102	92	360	2	2	5	12	3	2	2	1	⁺

*One lion and one tiger in Sweden are from the same location and are therefore only represented as 1 outbreak in this table. **One lion and one tiger in the United States of America are from the same location and are therefore only represented as 1 outbreak in this table. †One lion, one amur leopard and one snow leopard in the USA are from the same location and are therefore only represented as 1 outbreak in this table.

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 (01/09/2021 - 30/09/2021)

During the last month **9 outbreaks** have been reported or updated by **4 countries (Greece, Indonesia, Spain, and United States)** in **5 animal species** (dog, gorilla, mink, otter, tiger). The recent distribution of outbreaks is reported in Figure 2.

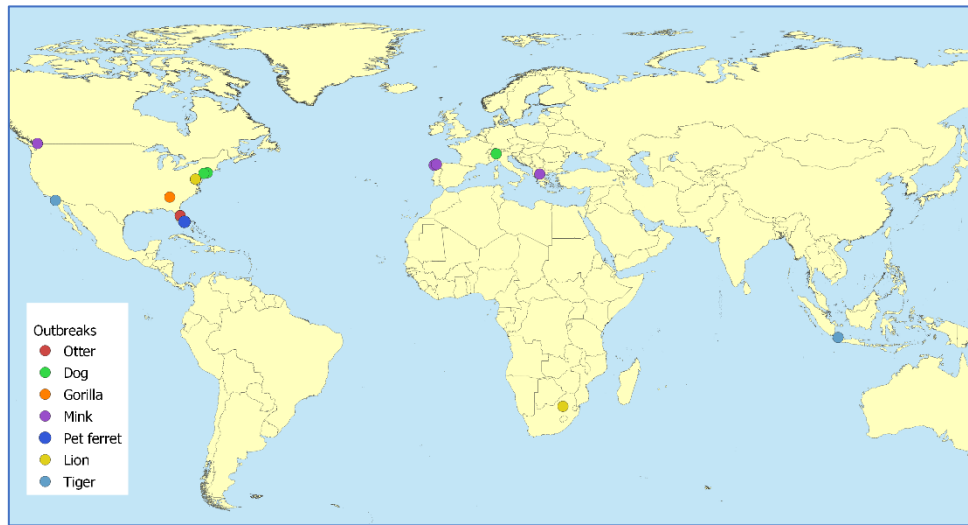


Figure 2. Worldwide recent distribution of SARS-CoV-2 outbreaks reported to the OIE (01/09/2021 - 30/09/2021).

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, **584 outbreaks** in animals have been reported globally, affecting **12 species** in **30 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 by **Spain** in **minks**
- SARS-CoV-2 was reported through **1** Immediate notifications by **Indonesia** in **tigers**
- SARS-CoV-2 was reported through **1** follow-up report by **Greece** in **minks**
- SARS-CoV-2 was reported through **3** Follow-up report by **United States of America** in **dogs, gorillas, otters, pet ferrets and tigers**

Relevant epidemiological comments from countries:

- **Greece (mink farm affected):** "In total, 25 out of 91 mink farms have been tested positive for SARS-CoV-2 since the first outbreak was confirmed on 13/11/2020. Epidemiological data and comparative analysis among human and mink isolated SARS-CoV-2 genomes indicate that minks were infected, in most of the cases, by humans. Stamping out and official disposal of carcasses were only applied to the first confirmed farm. At that point, it was decided to stop culling animals [...]"
- **Spain (mink farm affected)** "Source still under investigation, there is a possibility of a human origin, given the existence of a positive PCR result in one of the farm workers in a sample taken on August 23rd 2021, being the positive result in the minks in a sampling carried out on September 1st 2021".
- **Indonesia (tigers affected)** "The zoo is closed since 22 June 2021 due to movement restriction during the Covid-19 situation in Jakarta and Greater Area. Since no visitor was allowed to the zoo, contact with zookeeper(s) is suspected to be the cause

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

of infection. All zookeepers and close contact relatives were tested for Covid-19 on the 2nd July 2021, and the results showed that 4 out of 83 zookeepers were positive for Covid-19 with no clinical signs. Two of the positive results were detected on the keeper in charge of the infected tigers Tino and Hari. However, to be able to conclude that there was a transmission of Covid-19 from humans to tigers, we need to establish the time series. All affected animals have been treated and have recovered, no more clinical signs were observed in the affected animals and in the population. All felines and primates are subject for observation. No other animal have similar clinical signs observed”.

- **United States of America (dogs, gorillas, otters, pet ferrets and tigers affected):** “California (CA): Two additional tigers from a previously reported zoo were confirmed positive for SARS-CoV-2 at the National Veterinary Services Laboratories (NVSL) based upon molecular testing (PCR and sequencing). Florida (FL): A tiger at a zoo was confirmed positive for SARS-CoV-2 at the NVSL based upon molecular testing (PCR and sequencing). The affected animal exhibited clinical signs, including coughing, wheezing, vomiting, ocular and nasal discharge, inappetence, lethargy and soft stool, but has since recovered. It is likely that the SARS-CoV-2 virus was transmitted to the tiger by an infected human. One additional tiger who shares the same area as the affected animal has not shown clinical signs and tested negative for SARS-CoV-2. - Georgia (GA): Four western lowland gorillas at a zoo were confirmed positive for SARS-CoV-2 at the National Veterinary Services Laboratories (NVSL) based upon molecular testing (PCR and sequencing). Of the zoo’s 20 gorillas, 18 have shown varying clinical signs, including coughing, sneezing, nasal and ocular discharge, inappetence or anorexia and lethargy. [...] It is likely that the SARS-CoV-2 virus was transmitted to the gorillas by an infected human. District of Columbia (DC): A tiger and lion at a zoo were confirmed positive for SARS-CoV-2 at the NVSL based upon molecular testing (PCR and sequencing). The affected animals exhibited clinical signs, including coughing, lethargy, fever and inappetence. [...] It is likely that the SARS-CoV-2 virus was transmitted to the tigers and lions by an infected human. Symptomatic animals are being treated supportively, and the zoo has increased biosecurity measures. Florida (FL): A domestic ferret from a known positive COVID-19 household was confirmed positive for SARS-CoV-2 at the NVSL based upon molecular testing (PCR and sequencing).”

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
- [Finland First in EU to Vaccinate Fur Farm Animals Against COVID-19 - 01.10.2021, Sputnik International \(sputniknews.com\)](#)
- [Bats in Laos caves found to carry coronaviruses that share key feature with Sars-CoV-2, SE Asia News & Top Stories - The Straits Times](#)
- [Covid-19 News: Researchers Studying Cambodia Bats To Track Origin Of SARS-CoV-2 \(abplive.com\)](#)
- Orangutans tested for SARS-CoV-2 in Malaysia [Orangotangos de Bornéu passam por testes de coronavírus - Notícias - BOL \(uol.com.br\)](#)