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CORONAVIRUS DISEASE 2019 UPDATE (189): NETHERLANDS (NORTH BRABANT) ANIMAL, FARMED MINK, RESEARCH, CAT, DOG

A ProMED-mail post

<http://www.promedmail.org>

ProMED-mail is a program of the

International Society for Infectious Diseases

<http://www.isid.org>

Date: Fri 15 May 2020

Source: Veearts.nl [in Dutch, trans., edited]

<https://www.veearts.nl/2020/katten-op-nertsenbedrijven-besmet-met-coronavirus/>

At the 1st mink farm found infected with COVID-19 virus [SARS-CoV-2] in North Brabant, antibodies against the virus were detected in 3 out of 11 farm cats. No [viable] virus was found in the cats. This means that the 3 cats had been infected. Minister Schouten of LNV [Ministry of Agriculture, Nature and Food Quality] writes this in a letter to the House of Representatives [Dutch; link in the commentary below].

According to Schouten, it cannot be determined how the cats contracted the infection. Further research is being conducted into the cats on the infected mink farms. The cats should be kept inside the farm or in the yard as far as possible.

No coronavirus has been detected in studies of new air samples taken inside and outside the stables of the 1st 2 infected mink farms. At the end of April [2020], a virus was found in the air in the stable. Now that no virus has been found for the 2nd time in air outside the stable, the restrictions on the zone of 400 m [0.25 mi] around the infected farms can be lifted, according to Minister Schouten. As a precaution, walking and cycling in that zone was forbidden.

[According to Schouten's letter to the parliament, "although it is unknown whether the virus on the dust particles sampled earlier inside the buildings are still infectious, their positive results indicate that individuals in the buildings may be exposed to the virus. In accordance with the advice of the researchers and RIVM, it therefore remains important that employees who work inside the buildings of contaminated mink farms continue to follow the initial precautionary measures in accordance with the GGD (municipal health organisation for preventive healthcare) advice." - Mod.AS]

Research on and around the 2 infected mink farms will continue in the coming weeks. Sick and dead animals are examined, and blood from healthy animals is to be examined again, twice. Depending on the developments on the infected farms, follow-up research will be carried out.

A dog with antibodies against the COVID-19 virus [SARS-CoV-2] has also been found in the Netherlands. This is a separate event, not related to the infected mink farms. The dog's owner is a COVID-19 patient. The dog had breathing problems and was euthanized on 30 Apr 2020 because of worsening of the complaints. Previous reports of infected dogs came from Hong Kong.

Minister Schouten asked veterinarians to report suspicions of COVID-19 in animals, including pets, to the NVWA [Netherlands Food and Consumer Product Safety Authority]. The NVWA assesses these reports. If a suspicion is found of significance, follow-up investigations are carried out.

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<promed@promedmail.org>

[According to the original letter of Minister Carola Schouten to the Dutch House of representatives [Dutch, available at https://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2020Z08824&did=2020D18884], the described affected dog was an 8-year-old American bulldog; antibodies against SARS-CoV-2 detected, no viable virus. It has not become established if its respiratory problems, leading to the euthanization, were the result of COVID-19 or another cause.

The 3 seropositive cats from the Dutch mink farms adds Netherlands to the list of countries in which SARS-CoV-2 natural infection has been reported in cats, namely Belgium, Hong Kong, USA, France, Spain, and Germany. In difference with the previous cases, in which human patients were considered to be the source of feline infection, the Dutch cats may have been infected from the minks; under study.

ProMED-mail's posting 20200512.732858 presented the item [part 1] "Netherlands: Questions and answers regarding infection with COVID-19 in mink," copied from the website of Wageningen University Bioveterinary Research (WBVR). The Q&A included the following segment: "Mustelids, which include mink, are susceptible to infection with coronavirus, as these animals have specific receptors on their cells that are affected by the virus. Felines, hamsters, and monkeys are susceptible for the same reason, as are bats, from which the virus originates in China."

We have received the following comment from (the evolutionary biologist) Sebastien Puechmille, University of Montpellier, France [edited]:

"The last part of the sentence is asserting/affirmative that the virus originated in bats in China. This is a common mistake done in the media. The origin of the virus is yet unclear, and although the closest relatives of SARS-CoV-2 have indeed been found in Asian *Rhinolophus* species, the divergence between the SARS-CoV-2 and its closely related virus in bats is estimated to have occurred decades ago (Refs 1, 2). The host of the most recent common ancestor of SARS-CoV-2 and the closely related bat viruses is yet unknown, although, of course, it can be hypothesized it was a bat (e.g., a *Rhinolophus* species), but this remains a hypothesis, not an established fact. So we are still missing decades of evolution of SARS-CoV-2. There are many unknowns/uncertainties in this emergence, and it would be very important to make these clear and not jump to conclusions too quickly."

"Also, 'bats' is an entire order with more than 1421 species described to date, and the closest relatives to SARS-CoV-2 found in bats have only been found in *Rhinolophus* species (represented by 'only' a few 10s of species in China). It would therefore be wise to be as specific as possible and avoid implicating an entire order. Indeed, sarbecoviruses have only been found in a few of the 21 bat families, despite intensive searches in the order (more than 50 000 samples)."

References:

1. Boni MF, Lemey P, Jiang X, et al.: Evolutionary origins of the SARS-CoV-2 sarbecovirus lineage responsible for the COVID-19 pandemic. bioRxiv. 2020; doi: <https://doi.org/10.1101/2020.03.30.015008>.
2. Wang H, Pipes L, Nielsen R: Synonymous mutations and the molecular evolution of SARS-Cov-2 origins. bioRxiv. 2020; doi: <https://doi.org/10.1101/2020.04.20.052019>.

Prof Puechmaille's comment allows the following brief explanation. ProMED-mail's moderated postings are typically combined of 2 parts: 1. a cited or original, directly received report/article, and 2. a moderator commentary. Part 1 includes information and/or views of its respective authors/sources; ProMED-mail's views are included in the commentaries.

ProMED-mail's view does not support the bat origin of SARS-CoV-2 as an "established fact" but rather as highly likely, given its close phylogenetic relationship, similarly to SARS-CoV-1, with other beta-genus lineage b bat SARS-CoV; see commentary in posting 20200217.6997782. - Mod.AS

HealthMap/ProMED-mail map:

North Brabant, Netherlands: <https://promedmail.org/promed-post?place=7344274,1250>

See Also

COVID-19 update (183): Japan/USA, animals, research, cat, experimental infection 20200514.7337185
 COVID-19 update (181): Germany (BY), France (AC), cat, OIE animal case definition 20200513.7332909
 COVID-19 update (177): Netherlands (NB) animal, farmed mink, Spain (CT) cat susp 20200512.732858
 COVID-19 update (174): Netherlands (NB) animal, farmed mink, comment 20200511.7323845
 COVID-19 update (169): Netherlands (NB) animal, farmed mink, spread, rabbit susp 20200509.7316646
 COVID-19 update (154): Netherlands (NB) animal, farmed mink, research 20200503.7294846
 COVID-19 update (146): Netherlands (NB) animal, farmed mink, epidemiology 20200501.7286113
 COVID-19 update (135): Netherlands (NB) animal, farmed mink 20200427.7272289
 COVID-19 update (146): Netherlands (NB) animal, farmed mink, epidemiology 20200501.7286113
 COVID-19 update (143): USA (NY) animal, zoo, tiger, lion, tests 20200430.7284183
 COVID-19 update (141): India, animal, wild tiger, susp, clarification, RFI 20200430.7281768
 COVID-19 update (138): India, animal, wild tiger, fatal 20200428.7275765
 COVID-19 update (135): Netherlands (NB) animal, farmed mink 20200427.7272289
 COVID-19 update (130): USA (NY) animal, zoo, tiger, lion, new cases 20200425.7266556
 COVID-19 update (124): USA (NY) animal, cat, lion, OIE 20200423.7259119
 COVID-19 update (123): USA (NY) animal, cat, conf 20200422.7256272
 COVID-19 update (113): USA (NY) cat, animal, susp, RFI 20200418.7240811
 COVID-19 update (88): Germany, animal, research, pig, chicken, bat, ferret 20200407.7196506
 COVID-19 update (85): USA (NY) animal, tiger, OIE 20200406.7191480
 COVID-19 update (84): USA animal, tiger 20200406.7191352
 COVID-19 update (76): China (HU) animal, cat, owned, stray, seropositive 20200403.7179946
 COVID-19 update (75): China (Hong Kong) animal, cat, OIE 20200403.7179945
 COVID-19 update (70): China (Hong Kong) animal, cat, pets & stock 20200402.7173286
 COVID-19 update (58): Belgium, animal, cat, clinical case, RFI 20200327.7151215
 COVID-19 update (56): China (Hong Kong) animal, dog, final serology positive 20200326.7146438
 COVID-19 update (50): China (Hong Kong) animal, dog, 2nd case PCR positive, OIE 20200323.7129951
 COVID-19 update (45): China (Hong Kong) animal, dog, 2nd case PCR positive 20200319.7112693
 COVID-19 update (37): China (Hong Kong) animal, dog, prelim. serology negative 20200312.7081842
 COVID-19 update (30): China (Hong Kong) animal, dog, susp, serology pending 20200306.7057595
 COVID-19 update (25): China (Hong Kong) animal, dog, susp, OIE 20200302.7040373
 COVID-19 update (22): companion animals, dog susp, RFI 20200229.7036661
 COVID-19 update (17): China, animal reservoir, wildlife trade & consumption 20200225.7024245
 COVID-19 update (11): animal reservoir, intermediate hosts, pangolin susp 20200220.7009213
 COVID-19 update (08): companion animals, RFI 20200218.7002276
 COVID-19 update (06): animal reservoir, intermediate hosts 20200217.6997782

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