

COVID-19 and North American Species of Mustelidae, Felidae, and Canidae

Prepared by the Fish and Wildlife Health Committee of the Association of Fish and Wildlife Agencies

Recent reports have indicated that several species of the families Mustelidae, Felidae, and Canidae are susceptible to infection by SARS-CoV-2, the causative agent of COVID-19, under non-laboratory conditions. These include the domestic dog, domestic cat, Malayan tiger, Amur tiger, African lion, domestic ferret, and farmed mink. Among captive or domestic animals, the limited available evidence suggests that certain species of captive or domestic Felidae and Mustelidae are more efficient hosts of viral replication, while the very small number of documented infections in domestic dogs worldwide suggests that domestic Canidae may be less susceptible to infection. None of the infections that have been detected to date were from wild free-ranging animals, and currently there is no evidence of a wildlife reservoir for SARS-CoV-2 involving species in North America. Although susceptibility has been established in these few species, there is insufficient information to fully evaluate potential animal-to-human transmission (zoonosis) risks or human-to-animal transmission (reverse zoonosis) risks associated with handling or contact with wild free-ranging animals in these families. Based on our current understanding of transmission pathways, the infection appears less likely to spread among animals with a solitary lifestyle (as occurs with many mustelids and felids) than among animals that live in social groups. There is no evidence at this time that such infections, if they occurred in individual wild mustelids, felids, or canids, would necessarily be maintained in populations of these species, or that SARS-CoV-2 would cause significant disease if established in these species. However, given the novel and unpredictable nature of SARS-CoV-2, these possibilities cannot be totally discounted and certainly warrant further investigation.

There are two potential transmission risk scenarios that may be of concern to stakeholders and biologists: 1) humans acting as a source of infection to mustelid, felid, and canid species and 2) SARS-CoV-2 infected mustelids, felids, and canids acting as a source for human infection. As humans currently represent the major reservoir for SARS-CoV-2 and no evidence exists that this virus is present in wild mustelids, felids, or canids in North America, the risk of transmission from a wild animal to human should not be of concern at this time. The potential for reverse zoonosis, however, may be valid, particularly in contexts such as rehabilitation, wildlife exhibition, and captive animal research where humans and animals may interact in close proximity for extended periods of time. Resources referenced at the end of this document provide additional guidance on risk mitigation strategies for such situations where humans will be in contact with live animals for extended periods of time.

At present, standard hunting and lethal trapping techniques for North American species of Mustelidae, Felidae, and Canidae pose minimal risk of reverse zoonotic infection to wild populations and essentially no risk of zoonotic infection to humans engaged in harvesting individuals of these species. Likewise, nuisance animal control activities that involve lethal interventions pose minimal risk of SARS-CoV-2 infection to either human or wildlife populations. However, wildlife research and management activities involving live trapping and direct handling of these species may pose a potential risk of exposure of SARS-CoV2 to these species from asymptomatic infected humans. The possibility of exposure from incidental catch and live release of non-target species by trappers and others should

also be considered. In all these situations, wildlife researchers, wildlife biologists, hunters, trappers, and those engaged in nuisance animal control should always comply with standard safety protocols, observe proper hygiene practices, and use appropriate personal protective equipment (PPE) when handling or directly contacting live animals and in the processing and disposing of animals and animal carcasses.

Potential risk mitigation strategies available at this time include: 1) temporary suspension or postponement of field research and management activities involving direct contact between humans and live, wild mustelids, felids, and canids; 2) proper training on, and use of, appropriate PPE (to include, at minimum, gloves and appropriate face coverings) and disinfectants for those handling live animals; 3) development of animal handling protocols to reduce transmission potential when handling live wild animals; 4) design and management modifications to eliminate or reduce potential transmission risks where animals are held in confinement (e.g., wildlife exhibition, wildlife rehabilitation, etc.), or temporary suspension of such activities when feasible; and 5) ensuring that key personnel remain healthy and free from COVID-19, which may involve regular temperature checks or prior testing of personnel for SARS-CoV-2 (antigen or antibody) before such personnel would be allowed to be in direct contact with live mustelids, felids, and canids. In general, risk mitigation actions should be commensurate with the degree of risk associated with a particular research or management activity, with activities that entail more frequent and prolonged contact between humans and animals representing a greater risk of exposure.

Decisions regarding adoption and implementation of any of these potential strategies at the present time can only be supported with potential, rather than estimated or known, transmission risks. However, simple steps such as the use of appropriate PPE when handling live individuals of these species destined for release or maintenance in captivity; reduction or postponement of work involving human contact with these species that is not deemed essential to management or research at this time; and ensuring that key personnel remain healthy and free from COVID-19 appear to be prudent steps to reduce possible transmission to wildlife.

Relevant Resources:

[AZA Felid Taxon Advisory Group Statement on SARS-CoV-2](#)

[AZA Small Carnivore Taxon Advisory Group SARS-CoV-2 Considerations and Precautions](#)

[CDC Evaluation for SARS-CoV-2 Testing in Animals](#)

[CDC COVID-19 and Animals](#)

[CDC COVID-19 and Animal FAQs](#)

[EPA List of Disinfectants for Use Against SARS-CoV-2 \(COVID-19\)](#)

[USDA SARS-CoV-2 Case Definition](#)

[USDA Animal Testing FAQs for State Animal and Public Health Officials](#)

[World Organization for Animal Health: Q&As on COVID-19](#)