

Information bulletin on bats in BC, COVID-19, and WNS

The BC Community Bat Program aims to share current, accurate information about bats in BC, and issues around bat and human health. Our program strives to educate people about bats and dispel misinformation that may lead to persecution of bats. We are not public health experts or virologists; our information comes from the sources cited below.

BC bats and COVID-19^{1,2}

- Bats in BC do not have or spread SARS-CoV-2 (the virus that causes COVID-19 in humans). SARS-CoV-2 is not found in North American bat species at present.
- Transmission of COVID-19 is from humans to other humans
- There are theoretical concerns about the possibility for transmission of SARS-CoV-2 from humans to bats. There is no evidence at this time that North American bat species can be infected with SARS-CoV-2; however, the data is extremely sparse, so out of an abundance of caution, until we know more, precautions to minimize the chance of North American bats of being exposed to SARS-CoV-2 are being taken. This is not unique to bats - there are also concerns of possible transmission from humans to other wildlife species, particularly mustelids, felids and canids.³
- Research is underway to investigate if transmission of SARS-CoV-2 from humans to bats is possible and the potential consequences of a transmission event.
- Avoid handling live bats and any wildlife. If handling live bats cannot be avoided, follow recommendations about PPE to prevent spread of respiratory droplets – a face mask, thick gloves, etc.
- The concern is transmission of SARS-CoV-2 from humans to bats, not vice versa, so handling dead bats is fine as long as the normal precautions to prevent rabies exposure are followed.

Bat conservation and COVID-19^{1,2}

- It is important that bats and bat habitat are not be destroyed because of unfounded fears over coronavirus transmission
- Many bat species have adapted to urban and rural environments, where they coexist safely with people. Ask us about living with bats safely.
- Bats in BC are in trouble from habitat loss and white-nose syndrome - half of our 15 BC species are currently 'at-risk'.
- Bats are essential to our BC ecosystems and economy. In the US, bats are estimated to provide 23 billion USD of natural pest control each year.
- Killing bats would not have any effect on the spread of COVID-19, but would negatively affect bat populations, conservation efforts, and our economy.

White-nose syndrome surveillance in BC

White-nose syndrome (WNS) continues to spread in Washington State and is expected to arrive in BC in the near future. Early detection of this fungal disease in BC will help direct research and management actions. Please help with surveillance.

- Continue to report any dead bats to info@bcbats.ca or at www.bcbats.ca
- Monitor roost sites at a distance for returning bats and report any carcasses in the vicinity of a roost

Current Knowledge of SARS-CoV-2 and bats

- A horseshoe bat (*Rhinolophus affinis*) origin has been suggested as a possible origin based on 96.2% similarity in the sequence of a coronavirus (BatCoV RaTG13) isolated from this species and SARS-CoV-2⁴. Based on the relatively low homology it is considered more likely that the virus passed through an intermediate host rather than jumping directly from bats to humans. Several intermediate hosts have been suggested, but conclusive evidence is lacking⁵.
- Egyptian fruit bats (*Rousettus aegyptiacus*) (n=9), a megabat species, that were intranasally inoculated with SARS-CoV-2 became infected, but did not show any symptoms of disease and did not infect their fellow animals efficiently. Viral RNA was found in nasal epithelium of 1/3 in-contact bats⁶.
- Cell lines developed from Big Brown Bats do not have the receptors for SARS-CoV-2 and are not susceptible to infection. However, cell lines represent a particular cell type and may have no relevance to cells in tissues that play important roles in viral transmission⁷.
- No available data yet on the susceptibility of other North American bat species to infection by SARS-CoV-2.

Information sources

¹BirdLife International. Important update: bats do not spread COVID-19. Accessed Apr 15, 2020 <http://www.birdlife.org/worldwide/news/important-update-bats-do-not-spread-covid-19?fbclid=IwAR0LFpsuoc5qo92a9FhkluRtHAB7PfHOrbNUuZZ_eOg-7elpR5FuuBwZHu4>

²Bat Conservation International. BCI's FAQ on bats, coronaviruses and zoonotic disease. Accessed Apr 15, 2020 <<http://www.batcon.org/resources/media-education/news-room/gen-news/80-latest-news/1227-bci-s-faq-on-bats-coronaviruses-and-zoonotic-disease>>

³Association of Fish and Wildlife Agencies. Voluntary Interim Guidance for bat-related activities in response to COVID-19. Version 1.0 (April 13, 2020).

⁴Zhou, P., Yang, X., Wang, X. et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature 579, 270–273 (2020). <https://doi.org/10.1038/s41586-020-2012-7>

⁵Xu J, Zhao S, Teng T, Abdalla AE, Zhu W, Xie L, Wang Y, Guo X. Systematic Comparison of Two Animal-to-Human Transmitted Human Coronaviruses: SARS-CoV-2 and SARS-CoV. Viruses. 2020 Feb 22;12(2). pii: E244. doi: 10.3390/v12020244.

⁶Friedrich-Loeffler-Institut; unpublished data. <https://www.fli.de/en/press/press-releases/press-singleview/novel-coronavirus-sars-cov-2-fruit-bats-and-ferrets-are-susceptible-pigs-and-chickens-are-not/>

⁷Misra V. pers comm. 2020