

IUCN SSC Bat Specialist Group (BSG) recommendations to reduce the risk of transmission of SARS-CoV-2 from humans to bats in bat rescue and rehabilitation centers

MAP: Minimize, Assess, Protect

Living Document Version 1.1 Released 15th July 2020

Authors (in alphabetical order): Tracey Jolliffe; Andrzej Kepel; Tigga Kingston; Jenny Mclean; Stuart Parsons; Danilo Russo; Julie Shapiro; Lisa Worledge

Overview

The recommendations given below relate to minimizing the risk of human to bat transmission of SARS-CoV-2. However bats, like other animals, are known hosts of other pathogens that can be transmitted to humans, some of which can cause serious illness or death. Those working with bats should always follow the advice of their government's health departments regarding minimization of the risk of pathogen transmission from bats to humans.

On 13 April 2020 the IUCN Species Survival Commission Bat Specialist Group (IUCN BSG) recommended the suspension of all field work that involves interactions with bats while it considered the risk of human to bat transmission of SARS-CoV-2, the virus that causes the illness COVID-19. Subsequently, the IUCN BSG convened a global panel of experts to assess the risk of human to bat transmission and to develop appropriate mitigation strategies to protect bats. It is the opinion of the panel that there is a **credible risk of human-to-bat transmission of SARS-CoV-2**, but this risk can be reduced using appropriate mitigation strategies.

The panel further recognises that our understanding of SARS-CoV-2 is changing rapidly, and advises bat rescuers and rehabilitators that this is a **living document** with updates anticipated.

Background

The following recommendations have been developed to encourage and assist bat experts and enthusiasts involved in bat rescue and rehabilitation around the world to prepare and implement these mitigation strategies. Special guidelines concerning SARS-CoV-2 should be included in the general framework of health and safety at facilities involved in bat rescue and rehabilitation, and take into account all regional risks, capabilities and regulations.

The rescue, treatment, rehabilitation or quarantine of bats is an important aspect of their conservation. These activities raise public awareness and help maintain the health of both bats and humans. This is a high priority because despite the current pandemic, members of the public still find bats that are injured, weakened or otherwise in need of help.

All activities involving close contact with wild animals, including bats, retain some risk of accidental transmission of pathogens between species, including from humans to animals. In the Netherlands and Denmark, SARS-CoV-2 has been transmitted to mink in farms, subsequently spreading through these domestic mink populations, and may have then been transmitted back to farm workers[1,2]. Therefore, during the current SARS-CoV-2 pandemic, the IUCN BSG considers it important to provide recommendations to professionals and members of the public who may come into contact with bats to minimise the risk of disease transmission. This is particularly important when people come into frequent and prolonged contact with bats and may not have access to necessary advice, training, or equipment.

There is currently no credible risk of transmission of SARS-CoV-2 from bats to humans. However, the IUCN BSG considers that there is a potential risk of human to bat transmission, which could create a viral reservoir in bats. This may have serious negative consequences for public health and human attitudes toward bats. Fortunately, this risk can be significantly reduced using appropriate mitigation strategies.

The scale of the risk of human to bat transmission of SARS-CoV-2 remains unknown, although research is ongoing. Therefore, the IUCN BSG has adopted a precautionary approach. Specifically, we recommend that bat rescue and rehabilitation workers adopt the IUCN BSG Minimize, Assess, Protect mitigation strategy and “MAP” their planned activities to prevent human to bat transmission:

1. **Minimize** direct contact with bats by keeping handling to a minimum, using face masks, gloves, and closed cardboard boxes for transportation until more is known about exposure, infectivity and transmissibility of SARS-CoV-2 from humans-to-bats;
2. **Assess** the risk you may pose of exposing bats to SARS-CoV-2 and avoid contact with bats if you have, or suspect you have, COVID-19 or have been exposed to someone with or suspected to have COVID-19;
3. **Protect** bats by modifying collection, rehabilitation and release practices to reduce opportunities for exposure to SARS-CoV-2.

Recommendations

The following recommendations aim to minimize the risk of accidental adverse impacts of bat rescue activities on both bats and bat workers due to SARS-CoV-2.

1. Capturing, securing and transport

- 1.a. Ask anyone finding a bat if, to their knowledge, the bat(s) may have had close contact with a person infected, or suspected of being infected, with SARS-CoV-2.
- 1.b. Advise anyone finding a bat that they should avoid holding them in the hand. We recommend that they are contained, preferably using cardboard boxes. Use disposable or disinfected gloves whenever handling bats is unavoidable. Do not hold bats for longer than necessary.

- 1.c. People finding bats, and rehabilitators, should use disposable cardboard boxes or special containers (disinfected and cleaned after each use) when transporting bats. Avoid containers with netting or rods that poorly isolate bats from humans.

2. Holding – treatment, rehabilitation, quarantine

- 2.a. Individuals who have symptoms of COVID-19, who know that they have had contact with such a person (both quarantined and non-quarantined), or have been in contact with a person at risk of exposure, should immediately cease all direct contact with bats until they can demonstrate that they are not infected.
- 2.b. The following protective measures and equipment shall be applied when carrying out any activities involving close contact or manipulation of animals:
 - i) When in rooms or enclosures with bats, always wear a mask that covers the nose and mouth, or a face shield with a clear visor that covers the entire face;
 - ii) Wash and disinfect hands with soap and water or disinfectants before starting work, including the touching of equipment that will come into contact with bats. Rewash and disinfect hands following any activity that might lead to contamination with the virus;
 - iii) Wear gloves of material and thickness suited to the species of bat being handled and the work being conducted. Change or disinfect gloves regularly;
 - iv) Only one bat should be placed in each bag or container when being held temporarily, with the exception of mother bats with babies. Some species of bat may be put under additional stress if held alone. This should be accounted for when implementing this measure. Bags and containers should be disinfected and cleaned between bats;
 - v) Carefully wash and disinfect all equipment in contact with bats (e.g. cages, bowls, tweezers, pipettes, syringes) before use;
 - vi) Do not blow with your mouth on bats (for example, to examine it or to break bites). Use alternatives such as blunt-ended dissecting scissors to part fur, bulb syringes or empty wash bottles with a fine nozzle to blow air onto the bat, etc;
 - vii) Avoid keeping more than one individual bat housed in the same cage or container, with the exception of groups of baby bats (pups) being hand-raised for eventual release, mother bats with babies, bats brought into care known to be from the same roost, or those that suffer high levels of stress when held alone;
 - viii) Please note: direct contact with disinfectant products can be harmful to bats so do not spray disinfectants near any bats in your care, and ensure you wash and dry any equipment or surfaces before and after coming into contact with bats after disinfecting.

2.c. During the COVID-19 epidemic, practice social distancing as much as possible. Work with bats individually or in small teams and avoid frequent exchanges of persons between teams. Minimise the number of different people coming into contact with each bat.

3. Release and permanent residents

3.a. If a bat has had contact with a person infected or suspected to be infected with SARS-CoV-2, the bat should be kept isolated from all other bats and should not be released until the related risks have been clarified and infection excluded. Consider consulting your local veterinarian for further guidance.

3.b. Bats that may have been exposed to SARS-CoV-2 should be tested if possible. The IUCN BSG recognizes this will not be financially or logistically feasible in all locations or circumstances. If a bat tests positive, it should be isolated from other bats and not released until two negative SARS-CoV-2 tests are obtained. If testing is not available, do not release the bat.

3.c. Bats unable to be released back into the wild due to injury or other incapacity should be permanently and effectively isolated from bats which may return to the wild after rehabilitation. This applies to the cages or rooms in which they are held, but also to any equipment and food associated with those animals.

3.d. To protect bats, public contact with bats used for education should be suspended until the risk of transmission of SARS-CoV-2 to bats is further clarified.

Further Reading & References

For more detailed recommendations for bat workers, including:

- disinfectant recommendations,
- recommendations on face coverings,
- general and basic best practices for field hygiene for standard bat survey work involving capture and handling of bats,

see: [IUCN SSC Bat Specialist Group \(BSG\) Recommended Strategy for Researchers to Reduce the Risk of Transmission of SARS-CoV-2 from Humans to Bats.](#)

Acknowledgements

The authors wish to acknowledge and thank the members of the wider IUCN BSG who have contributed their time and knowledge to evaluating the risk of human to bat transmission of SARS-CoV-2, and the development of mitigation strategies. Specifically, we thank: Paul Bates, German Botto, Andrew Cunningham, Winifred Frick, Neil Fury, Md Nurul Islam, Rebekah Kading, Stefania Leopardi, Isabella Mandl, Rodrigo Medellin, Ian Mendehall, Bakwo Fils Eric Moise, Paul Racey, Vu Dinh Thong, Amanda Vicente and Luis Viquez.

-
- [1] Oreshkova et al. 2020. SARS-CoV-2 infection in farmed minks, the Netherlands, April and May 2020. *Eurosurveillance*. <https://doi.org/10.2807/1560-7917.ES.2020.25.23.2001005>
- [2] Enserink. 2020. Coronavirus rips through Dutch mink farms, triggering culls. *Science*. <https://doi.org/10.1126/science.368.6496.1169>