

*Supplementary Material*

## Communication from the Zoo: Reports from Zoological Facilities of the Impact of COVID-19 Closures on Animals



**Harper Adams  
University**

**Investigating the impact of face coverings on keeper-animal interactions in zoological facilities**

### **Study information and declaration**

**Project team:** Dr Ellen Williams (Harper Adams University), Dr Jessica Rendle (Murdoch University), Dr Anne Carter (Nottingham Trent University), Dr Samantha J Ward (Nottingham Trent University)

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The covid-19 global pandemic has led to an abrupt cessation of visitors in zoological collections. During the closure periods we worked with a number of facilities to ascertain the impact of facility closures and subsequent reopenings on animal behaviour. The aim of that work was to further develop our knowledge of 'the visitor effect' on animals. The results indicated mixed behavioural responses (in terms of behaviour and enclosure use) across species (Williams et al. 2021a,b).

Beyond the impact on animals of the lack of visitors for prolonged periods of time, animals have also been exposed to changes to routines and to both members of the public and facility staff wearing face coverings. Through this questionnaire we plan to gather data which builds on the work we have undertaken previously. We would like to systematically gather data on keeper perception of animal behaviour during animalkeeper interactions, since you have been wearing face coverings as part of routine protocol. The results will contribute to our understanding of how the pandemic has impacted on zoo animals, and will enable us to further understand animal-keeper interactions and factors which may impact them.

We would be extremely grateful if you have the time to complete this short questionnaire for the animals with which you work. You should complete one questionnaire per animal (or group of animals) that you work with. Please retain the unique participant identifier given to you when you completed the first full questionnaire in case you need to contact us about the questionnaire.

Further information about this project is available from <https://zooanimalresearch.wordpress.com/> or via email at [coronaviruszoo@gmail.com](mailto:coronaviruszoo@gmail.com).

I am aware that:

1. The information I provide will be used to investigate the response of animals in zoological collections to keepers wearing face coverings during routine animal interactions
2. The information I provide during this questionnaire will be stored securely and will be accessible only by the research team for the purposes of this study and any future reports or presentations arising from this study
3. All information I provide during this questionnaire will be anonymised before production of reports or presentations

4. I can withdraw my input into this study at any time during the study by emailing the project team with my unique identifier number, on coronaviruszoo-project@gmail.com. If I withdraw from the study any contributions I made to the project will be removed from the study and destroyed.

By completing this questionnaire, I am confirming that I have read and understood the above information and agree for the information I provide to be used in the manner as outlined.

### Section 1: General Information

Notes for completion:

- Only to be completed if you are currently a full time or part time keeper/animal carer looking after the daily needs of animals in a zoological facility.
- Please do not disclose your name or the name of your facility anywhere on this form.
- Complete a separate questionnaire per animal/group of animals.

1.1. Country:

1.2. Size and type of zoo:

- Aquarium (<20 keeping/animal staff members)
- Aquarium (20 – 60 keeping/animal staff members)
- Aquarium (> 60 keeping/animal staff members)
- Farm park
- Drive-through safari
- Sanctuary
- Zoo (<20 keeping/animal staff members)
- Zoo (20 – 60 keeping/animal staff members)
- Zoo (> 60 keeping/animal staff members)
- Other

If you selected Other, please specify:

1.3. Prior to the coronavirus pandemic did you wear face coverings for PPE when interacting with the individual/group?

- Yes
- No

**Section 2: Animal Information (face coverings already worn)**

Please complete the questionnaire for one individual or group (if individuals are un-identifiable), you will be able to add additional individuals at the end of the questionnaire

2.1. Scientific name and common name of the individual/group:

2.2. Sex of the animal (if not a group):

- Male
- Female
- Unknown

2.3. Approximate age of the animal in years (if not in a group):

2.4. Duration of time working with this individual/group:

- Less than 6 months
- 6 months to 1 year
- 1 to 2 years
- More than 2 years

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2.5. Have you noticed any overall behavioural changes in this species during c-19 closures?

- Yes
- No
- Unsure

If yes, please provide brief details:

2.6. What type(s) of interactions do you currently have with the individual/group (tick as many as apply)?

- Health checking
- Feeding
- Cleaning enclosure
- Handling
- Animal training
- Other

If you selected Other, please specify:

2.7. Since you have been wearing face coverings, which type of face coverings do you wear most frequently when interacting with the animal?

- Disposable
- Cotton plain
- Cotton patterned
- Clear facemask/face shield
- Other

If you selected Other, please specify:

*2.8. Do you take any particular measures when interacting with the animal whilst wearing or prior to wearing a face covering to ensure communication is still efficient?*

- Yes
- No

If yes, please provide details:

*2.9. Have you noticed any changes in the animal you are interacting with since the initial closures of your zoo?*

- Yes
- No

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If yes, please provide details:

2.10. *Any other comments:*

**Section 3: Animal Information (face coverings not already worn)**

Please complete the questionnaire for one individual or group (if individuals are un-identifiable), you will be able to add additional individuals at the end of the questionnaire.

3.1. *Scientific name and common name of the individual/group:*

3.2. *Sex of the animal (if not a group):*

- Male
- Female
- Unknown

3.3. *Approximate age of the animal in years (if not in a group):*

3.4. Duration of time working with this individual/group:

- Less than 6 months
- 6 months to 1 year
- 1 to 2 years
- More than 2 years

3.5. Have you noticed any overall behavioural changes in this species during c-19 closures?

- Yes
- No
- Unsure

If yes, please provide brief details

3.6. What type(s) of interactions do you currently have with the individual/group (tick as many as apply)?

- Health checking
- Feeding
- Cleaning enclosure
- Handling
- Animal training
- Other

If you selected Other, please specify:

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3.7. When did you start wearing face coverings whilst interacting with the individual/group?  
(Please provide an approximate date)

3.8. Since you have been wearing face coverings, which type of face coverings do you wear most frequently when interacting with the animal?

- Disposable
- Cotton plain
- Cotton patterned
- Clear facemask/face shield
- Other

If you selected Other, please specify:

3.9. Did you notice any changes in your animals when you first started wearing face coverings during interactions with the individual/group?

- Yes
- No

If yes, please provide details

*3.10. Do you take any particular measures when interacting with the animal whilst wearing or prior to wearing a face covering to ensure communication is still efficient?*

- Yes
- No

If yes, please provide details

*3.11. Any other comments:*

**Final page**

Thank you very much for taking the time to complete this questionnaire, we really appreciate it!

To complete a survey for another animal or species with which you work please go to <https://harper-adams.onlinesurveys.ac.uk/face-coverings-in-zoos>

If you have any questions about this research or would like any further information about the project then please do not hesitate to contact us on [coronaviruzooproject@gmail.com](mailto:coronaviruzooproject@gmail.com). Further information is also available via our website: <https://zooanimal-research.wordpress.com/>.

With very best wishes,

Dr Ellen Williams (Harper Adams University), Dr Jessica Rendle (Murdoch University), Dr Anne Carter (Nottingham Trent University), Dr Samantha J Ward (Nottingham Trent University)

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