

Appendix 1. Questionnaire

Harley is a 7-year-old male red panda that has been housed at Perth Zoo since 2006. After almost a year at Perth Zoo, Harley began to pass mucous stools, preceded by periods of lethargy and inappetence, which were seasonal and lasted for between 1-3 days.

After consultation with red panda keepers on other continents, it seems that Harley is not alone, and this is a welfare issue affecting red pandas in several zoological institutions. It has also become apparent that this phenomenon occurs more in some geographical locations than others.

One objective of captive breeding programmes in zoos is to maintain red pandas in captivity for the purpose of conservation; therefore it is essential we continue to improve our captive wildlife management practices. I aim to undertake a research program which improves red panda captive management by providing a greater understanding on red panda health and welfare.

In an effort to gain further information, I have developed a questionnaire that I would like red panda holders to participate in. Prior to submitting your responses to the questionnaire, I would kindly request that you ensure you have approval to participate in this survey on behalf of your animal holding facility.

On completion of this research I will forward a summary of my findings to the red panda community, in an effort to improve current keeping practices.

| Number | Question |
|--------|--|
| 1 | Facility name |
| 2 | Location |
| 3 | How long have red pandas been held at your facility? |
| 4 | How many red pandas have been held at your facility? |
| 5 | How many of those red pandas have shown all of the following symptoms: lethargy, anorexia & diarrhoea/mucous stools? |
| 6 | If there have been no red pandas that have shown the above-mentioned symptoms, your questionnaire is finished, thank you for your participation. |
| 7 | Is the development and occurrence of these symptoms seasonal? (Y/N) |
| 8 | If so, which season(s)? |
| 9 | Do these symptoms occur every year? (Y/N) |
| 10 | If so, over how many years has this reoccurred? |
| 11 | Were the pandas that suffer these symptoms hand-reared or parent-raised? |
| 12 | For those that were parent-raised, what was the approximate duration of parental care? |
| 13 | At what age did your pandas start showing these symptoms? |
| 14 | Were the red pandas that suffer these symptoms male or female? |
| 15 | Were the red pandas that suffer these symptoms male or female? |
| 16 | Please provide details of how many males and/or females. |
| 17 | Where were the red pandas that show these symptoms born? |
| 18 | Does your red panda enclosure contain any vegetation that the animals can access? (Y/N) |
| 19 | If yes, have you observed them eating any of the following: fruit, leaves, flowers, grasses? |
| 20 | Does your red panda housing allow other fauna to enter the area? |
| 21 | If so, what fauna are able to enter the area? |
| 22 | Do you provide medical treatment to the red panda suffering these symptoms? |
| 23 | If yes, please provide brief details on the treatment (i.e. drug therapy, duration of treatment). |
| 24 | Is the treatment successful at reducing the severity or curing the symptoms? (Y/N) |
| 25 | Can you provide details regarding the captive diet of your red panda, including the species of bamboo fed to pandas, if any? |
| 26 | Do you modify the diet at the onset of these symptoms? (Y/N) |
| 27 | If you modify the diet, in what way do you this? |