

## **Appendix 1.**

Script used to conduct focus groups

## Elephant Welfare Focus Group Guide

Aim: To gather stakeholder opinion on welfare measures and resources of importance to elephants.

### **Ask bold questions as the bare minimum.**

Good *morning/afternoon* and thank you for taking the time to join our discussion of elephant welfare. My name is Carly Chadwick and I'm a researcher working with the Elephant Welfare Group Behaviour Sub-group.

We are attempting to gain information about measures of elephant welfare and we have invited people who work with elephants to share their perceptions and ideas on this topic.

You were invited to participate because you have experience and knowledge of the care and management of captive elephants. We are relying on you to help us understand more about this topic because of your experiences.

Today we will be discussing current behavioural measures of elephant welfare, and resources that are important to elephants. There are no right or wrong answers. Please feel free to share your opinion, even if it differs from what others have said. Our discussion will last about an hour.

To explain the format of our discussion a little more, we are using a semi-structured interview method and working according to a specific script, so that the questions we ask are consistent across all of the discussion groups. So we would encourage you to have a dialogue with one another, but we ourselves are trying to only prompt you for further clarification on the information you're providing. For this reason, there may be times during the discussion when you don't hear from us, unless we would like to ask you to elaborate on an answer.

Before we start, I'd like to share a few ground rules that will help our discussion. Please speak clearly, and we ask that only one person should talk at a time. We are making an audio recording of the session because we don't want to miss any of your comments. If several people are talking at the same time, it will be difficult for us to hear you and we'll miss your comments. It's important for us to hear everyone's ideas and opinions and we would like everyone to participate.

We will be on a first name basis today, and in our later reports there will not be any names attached to comments. You may be assured of complete confidentiality.

First I'd like to ask each of you to tell me your name and your role at (*name of zoo*).

### **1. How would you visually assess elephant welfare?**

*Prompt questions if one or both not covered by the above:*

2. *What behaviours do you think you might see if an elephant was experiencing good welfare?*
3. *What behaviours do you think you might see if an elephant was experiencing poor welfare?*

### **4. Prompt Question [ONLY IF NEEDED TO STIMULATE DISCUSSION]:**

What behaviour would you use to tell if elephant welfare was positively or negatively affected by changes to their environment? For example, if:

- a new elephant was introduced to the group
- an existing group member left the group
- the enclosure was modified
- their feeding routine changed
- a new training method or contact routine was adopted
- keepers joined/left the team

*If they request examples of welfare indicators we say for example stereotypes, sleep?*

### **5. What aspects of social group and composition are important for welfare?**

6. What would you say is an ideal social group and composition?

*IF they request examples of social resources say number of animals, relatedness of group members?*

**7. What features of the environment are important to elephants?**

8. Imagine you were given unlimited resources and funding and were asked to build an elephant enclosure. What would the enclosure look like? What would it contain?

*Possible prompts here: enrichment, flooring, methods of food supply, how much indoor and outdoor space, social group.*

*Then if there's time:*

9. If you could provide one resource for captive elephants that they don't currently have access to, what would it be?

*IF they request examples of resources say sand, wading pool?*

10. What kinds of environmental enrichment are beneficial to elephants?

Finally, is there anything else you would like to add, or anything you feel we have missed?

Once again, thank you very much for participating in this discussion. We're conducting a number of teleconferences with people from different zoos. Once these are complete, our next steps will be to summarise our findings and produce a report; this will be sent your email address, if you provided one on the participant consent form.

## **Appendix 2.**

Indicators of elephant welfare identified by focus group participants

Behavioural	Natural behaviour		Digging	
			Drinking	
			Exploration	
			Feeding	
			Foraging	
			Interaction with substrate	
			Manipulating objects	
			Mud wallowing	
			Object play	
			Scratching or rubbing	
			Sleep or lying rest	
			Swimming (immersed)	
			Use of pool (excluding immersed swimming)	
			Abnormal behaviour	
	Non-stereotypic	Self-directed		
	Stereotypic	Foot lifting		
		Head banging		
		Head bobbing		
		Locomotory (eg pacing)		
		Rocking		
	Demeanour			Alert
				Attitude
				Ear position
				Facial expressions
				Posture
				Guilty looks
				Looking happy
People and training			Relaxed	
			Trunk position	
			Change in responsiveness	
			Cooperation with keepers	
			Interaction with keepers	
			Interaction with public	
			Response to training	

Behavioural (cont.)	Social interactions	Affiliative behaviours
		Aggression
		Allomothering
		Avoidance
		Change in social interactions
		Compatibility
		Consistency of association
		Displacement
		Dominance
		Excessive aggression
		Food sharing
		Low or decreased social interaction
		Play
		Proximity
		Support
	Synchrony within group	
	Trunk contact	
Vocalisation	Rumble	
	Trumpet	
Physical		Able to get up and down
		Body condition score or weight
		Condition of teeth
		Eyes
		Fluidity of movement
		Foot condition
		Gait
		Injury
		Lameness
		Muscle tone
		Skin condition
Tusk growth		
Physiological		Cortisol and stress hormones
		Oestrous cycle
		Temporal gland draining

**Appendix 3.**

Resources of importance to elephants, identified by focus group participants

Physical environment	Browse	
	Enrichment	
	Facilities for bulls	
	Feeding opportunities	
	Live trees	
	Mixed exhibit	Primates
		Antelopes
		Birds
	Movement or exercise opportunities	
	Mud wallow	
	Opportunities for scratching or rubbing	
	Substrate	Sand
		Bark
		Woodchip
		Concrete
	Terrain	
	Training or management facilities	Protected contact walls
Ability to isolate for veterinary treatment		
Visual barriers		
Water features		
Woodland		
Social environment	Compatibility	
	Group composition	Ages
		Sexes
	Group dynamics	Dominance hierarchy
		Strong matriarch
	Group size	
	Management of bulls	Bachelor herds
Access to family group		
Relatedness		
Choice and environmental complexity	24 hour access to resources	
	Choice	
	Humidity	
	Light	
	Enclosure size	
	Temperature	