

**S3 Table: Definitions of terms used in this study.**

| <b>Term</b>                           | <b>Definition</b>  |
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| <b>Chained husbandry</b>              | Animals are restrained by chains (one-legged or two-legged ankle chains with lengths of less than 5m for elephants, collar-chains for macaques and tigers)                               |
| <b>Solitary husbandry</b>             | Animals are kept for most of the day under conditions that do not allow opportunities for tactile interaction, such as grooming or social bounding                                       |
| <b>Shelter</b>                        | Any natural or artificial structure that the animal has access to and that allows it to avoid exposure to direct sunlight and weather  |
| <b>Pacing stereotypy</b>              | Continuous back and forth walking along the same path for at least three repetitions   |
| <b>Weaving stereotypy</b>             | Continuously shifting weight from one body side to the other while standing in one place, often accompanied by swinging the head   |
| <b>Self-mutilation stereotypy</b>     | Self-inflicting injury and physical harm through biting of limbs or tails, or hitting the head against a wall  |
| <b>Hair plucking stereotypy</b>       | Continuous plucking of hair on limbs or other body parts, leading to bald patches or irritated skin  |
| <b>Licking stereotypy</b>             | Continuous licking of the same spot on a body part in absence of injury, leading to hair loss and irritated skin   |
| <b>Other behaviour stereotypies</b>   | Includes all other recognized stereotypic movements such as head bobbing (up and down movement of the head), spinning, bouncing or self-clasping   |
| <b>Teeth grinding behaviour</b>       | Animals are grinding their teeth, producing a notable sound  |
| <b>Aggressive behaviour</b>           | Animals display unusual amount of aggression towards conspecies, visitors or keepers, such as charging, showing teeth or hissing   |
| <b>Irresponsive behaviour</b>         | Animals that are awake do not react at all to events in the environment and do not interact with any object or animal for at least 5min  |
| <b>Animal show attraction</b>         | Animals are regularly made to perform various unnatural activities, such as balancing on two legs, riding tricycles, painting, or walking on tight-ropes within an arena for an audience |
| <b>Washing/bathing attraction</b>     | Visitors are permitted to wash an animal under guidance by animal supervisors  |
| <b>Photo opportunities attraction</b> | Visitors are allowed to pose for a photograph with restrained animals reserved for this purpose, e.g. tigers, orang-utans, macaques  |
| <b>Cub feeding attraction</b>         | Tiger cubs, previously removed from their mothers, are being presented to tourists to be fed with prepared milk formulation  |
| <b>Be-a-mahout attraction</b>         | Elephants are being assigned a tourist to handle it under supervision by a mahout for a half or full day   |