

PROTOCOL FOR THE SCORING OF FEET IN CAPTIVE ELEPHANTS IN ZOOLOGICAL COLLECTIONS IN THE UK & IRELAND

Introduction

The Elephant Welfare & Focus Groups worked with veterinary and biology students and zoo professionals to develop a system of routinely scoring the health of captive elephants' feet. The outcomes of this research project are captured below in a simple protocol, to be employed at all elephant holding collections. The data generated will allow collections to monitor the health status of their elephant's feet objectively over time, thus providing a tool to 1) assess the welfare and progress of any individual within the cohort and 2) the long-term effects of any environmental changes such that future recommendations on husbandry are evidence-based.

Protocol

1. All animals require photographs of all four feet to be taken from a variety of angles. Prior cleaning of the feet is necessary but the system does not require any other direct contact. Thus, the protocol can be employed on any animals in management systems that result in presentation of feet for visual inspection, but not animals in no-contact systems.
2. Start with the left fore foot (LF), then subsequently repeat all steps in the following order; right fore (RF), left hind (LH) and right hind (RH).
3. Clean the foot with water and scrubbing as necessary to ensure all structures are clearly visible (nails, cuticles, inter-digital spaces, soles and pads) and free of organic debris.
4. Present the foot in such a way that operator safety is assured but the following views are possible; apical, solar, lateral, medial (see Figure 1 attached). Adjustment of position between views may be necessary and all photos should show the foot in close-up but to include all the structures mentioned above without any obstruction. The foot needs to be static and all photographs in focus. Each animal will generate 16 photos (4 views of 4 feet).
5. All photographs must include essential details (date, zoological collection, animal ID and foot) either on a handheld card or electronically in the title of the saved image.
6. All photographs must be saved electronically in a format and library such that they are readily accessible, and linked to an animal's medical records (ideally in ZIMS) in order they can be related to any other variables (e.g. change in husbandry, season, BCS, weight).
7. From the photographs a score (0 – 3) is allocated to each foot according to presence and severity of any lesions (see attached scoring system table). The highest score becomes the overall score.
8. All scores are recorded (an example sheet and blank sheet are attached) and saved electronically. The transfer of this data to an electronic dataset (preferably in Excel) that includes all elephants in the collection is essential. It is hoped that in the future a central database covering all elephants in the UK & Irish cohort will be available.
9. Foot scoring, locomotion scoring and body condition scoring should take place each month in rotation such that each score is performed once every three months.

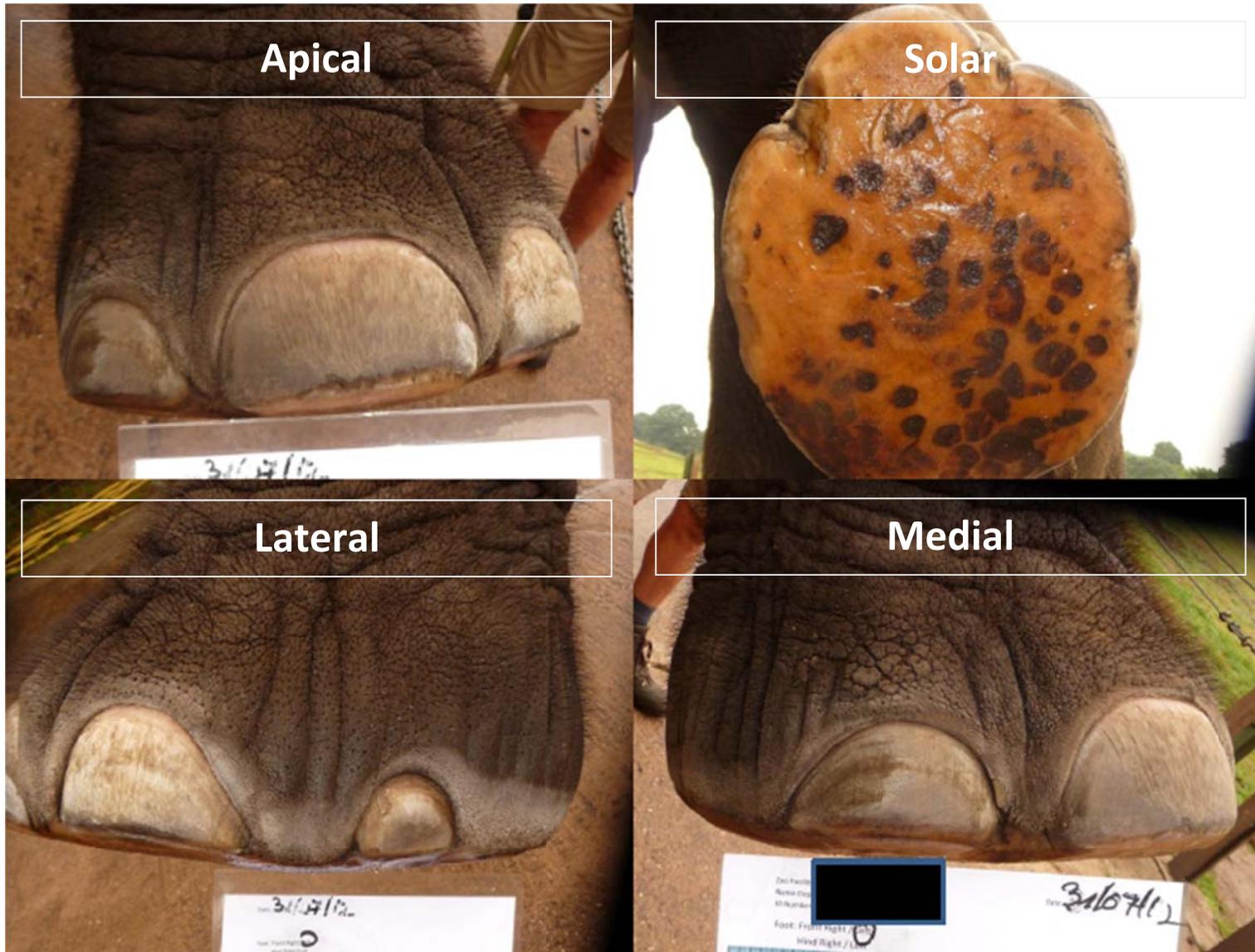
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Figure 1: Standardised photographic views of feet to be taken in captive elephants in the UK & Ireland



Scoring system for abnormalities of the feet in captive elephants in the UK & Ireland

Severity	Category	Photographic examples		Outcome
0 (Normal)	<ul style="list-style-type: none"> No lesions Normal nails, soles and pads 			<ul style="list-style-type: none"> No action required Continue with routine foot care regime
1 (Mild)	<ul style="list-style-type: none"> Nail cracks without complication Overgrown nails, soles and/or pads Disfigured nails Overgrown cuticles 			<ul style="list-style-type: none"> Corrective pedicures required Once complete, any overgrown nails or cuticles will be normal and the overall score may become 0
2 (Moderate)	<ul style="list-style-type: none"> Full thickness deficit of solar horn, exposing underlying tissue Nail crack extending into and exposing underlying tissue 			<ul style="list-style-type: none"> Corrective pedicures required Plus local debridement and local antibacterial therapy
3 (Severe)	<ul style="list-style-type: none"> As for 2 with tract(s) into deeper tissue and purulent discharge Upgrade from 2 when <ol style="list-style-type: none"> Persists unchanged for more than 8 weeks Occurs more than 3 times in 12 weeks 			<ul style="list-style-type: none"> As for 2 plus further investigation including microbiology and radiography to exclude/diagnose osteitis of phalanges

Example score sheet for feet in captive elephants in the UK & Ireland

Collection: ABC	Date: 2 July 2013
Individual elephant ID (name): Nelly	Individual elephant ID (ZIMS): AB1234

Foot	Score (0-3)	Description	Photos taken	Action
Left fore	2	Deep nail crack exposing underlying tissue	4	Pedicure, debride, (local antibiotics?)
Right fore	3	Full thickness solar deficit with discharge	4	As for LF with swabs and radiography
Left hind	0	normal	3	Normal routine
Right hind	1	Uncomplicated nail crack	4	Corrective pedicure
Overall score	3			

Comments: Crack on RH digit 3, LF crack has deepened since last week, RF 'abscess' now discharging so swab for culture & antibiotic sensitivity and booked digital radiography for next week. No lateral image of LH due to enclosure design. Continue on current analgesia.

Score sheet for feet in captive elephants in the UK & Ireland

Collection: Individual elephant ID (name):	Date: Individual elephant ID (ZIMS):
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Foot	Score (0-3)	Description	Photos taken	Action
Left fore				
Right fore				
Left hind				
Right hind				
Overall score				

Comments:
