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# IUCN/WWF Elephant Survey and Conservation Programme Questionnaire

Elephant Editors

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INTERNATIONAL UNION  
FOR CONSERVATION OF NATURE  
AND NATURAL RESOURCES

WORLD WILDLIFE  
FUND



September 4, 1978

P.O. Box 54667  
NAIROBI  
Kenya

The IUCN Elephant Survey and Conservation Programme is very interested in obtaining body measurements from captive elephants of known age and information from feeding and digestive studies. The former will be used to up date methods of age determination of elephants and the latter will be related to feeding studies in the wild. Any information you could give us would be much appreciated and will be full credited.

The questions we are asking are listed. Although we know it may not be possible to answer all of them, answers to any would be useful. We hope they may also indicate the type of information required to act as a guideline for future data collection and possible projects for students.

The most immediately important information required for the age estimation are the ages of loss of any of the molars and a correlation of the age class as defined by Laws (1966) with the actual age of the elephant.

The questionnaires have been submitted to the American Association of Zoological Parks and Aquariums for approval and are being distributed to the owners of captive elephants registered in the International Species Inventory System. However, if you have not received one and could help with information please send it to the IUCN Elephant Survey and Conservation Programme, P.O. Box 54667, Nairobi, Kenya.

Many thanks,

Dr. A.K.K. Hillman  
Deputy to Dr. I. Douglas-Hamilton



IUCN/WWF  
Elephant Survey and Conservation Programme

**ELEPHANT MEASUREMENTS - QUESTIONNAIRE**

Date:

Institution's name and address:

Informant's name:

How many captive elephants do you have?

For each elephant could you give its name or means of identification, species, sex, place of origin, age and method of estimation, date entered captivity, method of estimation of age when it entered captivity.

Do you have the ages of loss of any of the molars?

Do you have photographs, measurements (length and width), descriptions (e.g. number of lamellae, state of wear) of the teeth of any known-age elephants that have died? Can you relate them to any of the age classes described in the paper by Laws (1966), Age criteria for African elephant (Loxodonta africana), E. Afr. Wildl. J.4:1-37.

Do you have information on any of the following:

Age of puberty (male):

Age of first oestrus (female):

Age of first copulation:

Age of first conception (female):

Age at birth of first young (female):

Do you have any of the following measurements?

Shoulder height (straight at fore leg)

Back length (horizontally, preferably from point between ears to anal flap)

Weight

Foot diameter (please state which foot and method of measuring)

Do you have any other relevant information?

Can you suggest any other informants?

**ELEPHANT NUTRITION AND DIGESTIVE PHYSIOLOGY - QUESTIONNAIRE**

This questionnaire is intended to survey the state of knowledge of elephant nutrition and digestive physiology derived from captive elephants, for use in the study of wild African elephants' feeding ecology. Any information

available is greatly appreciated. If detailed information outside the scope of this questionnaire is available, I would very much like to follow up the present survey in dialogue with the responsible researchers.

1. Name of respondent:
2. Institution name and mailing address:

Identification of species, sex, approximate age, weight, reproductive condition of elephant observed.

3. Level of information available

Qualitative: casual observation of feeding activity, no numerical records kept.

Quantitative I: numerical records kept of feed types and amount consumed, etc., but no experimental work attempted

Quantitative II: detailed records of food intake (quality and quantity) and faecal output, protein/energy requirements, experimental feeding trials.

4. Publications, if available, describing observations and/or research:
5. Conditions of captivity

(a) Nature of holding area (indoor stall, indoor enclosure only)

(b) Dimensions of:  
 (i) indoor enclosure  
 (ii) outdoor enclosure

(c) Mean daily temperature of elephant(s)  
 (i) indoors °C °C  
 (ii) outdoors °C °C

6. History of elephant (e.g. source, age at separation from family)
7. Time spent in feeding and other activities (e.g. resting, standing, lying, walking, other).

8. (a) Food intake

Please indicate units and whether this is wet or dry (oven-dried) weight

Average weight of food consumed per day

(b) Diet:

Food type: approx. proportion in diet - grass, leafy, wood material, commercial animal feed, other (specify)

9. Choice of diet

How was the animal(s) diet chosen? (Reference to literature or experience of others, experimentation for natural preference, other methods)

10. (a) Average content of feed  
Crude protein (in % dry weight)  
Crude fibre (in kcal./g)  
Energy (in kcal./g)
- (b) Extremes resulting in loss of weight (or normal growth or condition)  
Maximum crude fibre  
Minimum crude protein  
Maximum energy
- (c) Knowledge of specific nutritional requirements: e.g. mineral, salts, iron, calcium.
- (d) Water intake  
Average water content of food (in %)  
Average daily volume drunk (in litres)

11. Passage rate of food through gut:

- (a) Mean period  
(b) Is this different for different food types? Specify  
(c) Method of observation: (identifiable food emerging in faeces, undigestible markers or dyes)
12. (a) Average Number of Defaecations in 24 hours  
Average weight (wet or dry?) of faeces in 24 hours  
(b) Has faecal output for different quality feeds been determined?  
(c) Has faecal nitrogen concentration for different quality feeds been determined?

13. Digestibility of crude protein:

Have digestibility coefficients of crude protein been determined for different quality feeds?

14. Has any autopsy work on the structure of elephant digestive tracts been performed at your institution? If so, elaborate.
15. Are there plans to further investigate any of the above questions, either on the part of your institution or in association with local university or other research bodies?  
If so, please elaborate.

Thank you for your time and attention.

P. O. Box 54667  
NAIROBI, Kenya