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On the Chemical Composition of Elephant Faeces

The behaviour of a nine-year-old male elephant of some 2 tons body weight was watched in the Tsavo Royal National Park (East) on 20 September, 1962, between the hours of 7 a.m. and 6.25 p.m. During this period it selected some 60 plants or plant parts for its diet and it defecated 12 times at approximately one hour intervals. Its faeces were recovered on all but one occasion when they were voided in a water hole. The faeces were weighed fresh and after air-drying in the shade: they were also weighed after oven-drying at 50°—55°c.

The mean moisture content of the 11 sets of fresh faeces was 80.1±0.35 per cent. and the mean weight of dry matter defecated was 2.1±0.14 lb.

The mean chemical composition of the faeces, calculated on a moisture-free basis was:

Component	*Per cent. of dry matter*
*Ash	13.65 ± 0.47
Crude protein	6.92 ± 0.21
Nitrogen (N)	1.108 ± 0.033
Ether extractives	1.55 ± 0.09
Crude fibre	46.93 ± 1.16
Nitrogen—free extractives	30.98 ± 0.69
*Including:	
Silica	5.67 ± 0.39
Silica-free ash	7.99 ± 0.27
Calcium (Ca)	2.04 ± 0.085
Phosphorus (P)	0.246 ± 0.013
Sodium (Na)	0.143 ± 0.008
Potassium (K)	0.577 ± 0.025

The percentage content of each component of the faecal dry matter is remarkably constant. Crude fibre (C.F.) constitutes some 54 per cent. and nitrogen (N) 1.28 per cent. of the total organic fraction of the faecal dry matter. Calcium (Ca) constitutes some 15 per cent. of the total ash and some 25 per cent. of the silica-free ash of the faecal dry matter.

The N, C.F., total ash and Ca values reported above are of the same order as those of 1.139, 48.16, 10.77 and 1.87 per cent. respectively which were found in the dry matter of the faeces of an unknown elephant. These faeces were obtained in the same Park in March, i.e. some six months earlier.

On this occasion crude fibre also constituted some 54 per cent. and nitrogen also constituted 1.28 per cent. of the total organic fraction of the faecal dry matter. Calcium constituted some 17 per cent. of the total ash and some 24 per cent. of the silica-free ash of the faecal dry matter.

The agreement between the September and the March data (even though the latter are based only on a single sample) is remarkably good.

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Weights of some East African mammals

The following data on animal weights were collected from mature specimens obtained for carcase analysis. All female weights are exclusive of the conceptus. The classification of the vegetation types in which the animals were obtained follows Edwards, D. C. (in the Atlas of Kenya, 1959).

1. *Oryx beisa beisa* Ruppell (Beisa Oryx).

Area: Baragoi (1° 48′ N, 36° 47′ E), northern Kenya. Desert grass-bush.

Number in sample	Males 10		Females 4	
	kg.	lbs.	kg.	lbs.
Minimum	132.637	291.7	129.844	285.6
Maximum	189.162	416.2	163.000	358.6
Average	172.969	380.5	149.657	329.3

2. *Equus grevyi* Oustalet (Grevy's Zebra).

Area: Baragoi (1° 48′ N, 36° 47′ E), northern Kenya. Desert grass-bush.

Number in sample	Males 9	
	kg.	lbs.
Minimum	352.898	778
Maximum	430.917	950
Average	385.759	850

3. *Gazella thomsonii* Gunther (Thomson's Gazelle).

Area: Naivasha (0° 45′ S, 36° 25′ E), central Kenya. *Acacia-Themeda* grassland.

Number in sample	Males 10		Females 10	
	kg.	lbs.	kg.	lbs.
Minimum	23.475	51.7	16.950	37.3
Maximum	28.750	63.2	21.475	47.3
Average	25.306	55.7	19.338	42.5