
Coprohagy and unusual thermoregulatory behaviour in desert-dwelling elephants of north-western Namibia

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Abstract

The incidence of coprophagy in wild African elephants has rarely been reported in the literature. This paper reports on two such observed incidents among elephants of north-western Namibia. Unusual thermoregulatory behaviour in desert-dwelling elephants is also reported.

Introduction

The distribution, ranges, habitat selection and effect on vegetation of the desert-dwelling elephants (*Loxodonta africana* Blumenbach, 1797) of north-western Namibia have been reported by Leggett et al. (2003), Lindeque and Lindeque (1991), Viljoen and Bothma (1990) and Viljoen (1987, 1988, 1989a, 1989b). However, there have been no publications on certain aspects of desert-dwelling elephant behaviour.

Although the incidence of coprophagy in captured elephants has been reported (Sikes 1971; Stoinski et al. 2000), it is generally regarded as 'abnormal behaviour' (Stoinski et al. 2000). It has only once been reported in wild African elephants (Guy 1977), where younger members of a herd (two subadult females, one subadult male and two juveniles whose sex was not determined) fed on the dung of the dominant female.

This paper also reports two different methods of thermoregulatory behaviour employed by desert-dwelling elephants to cool their bodies in high ambient temperatures (> 40°C): moistening the back of the ears and body using water extracted from the pharyngeal pouch and using sand wetted by the urine of an adult female.

Study area

The 12 ephemeral rivers flowing to the west of Namibia arise in relatively high and wet regions of central Namibia and flow into the Atlantic Ocean or end in the Namib Sand Sea. Many originate in commercial farm-

lands, flow through communal farming areas, and near their mouths, traverse a protected conservation area. The Hoanib and Hoarusib River catchments occupy an area of 32,000 km², 2% of which lies in private farmlands, 92% in communal farmlands and 6% protected as Etosha National Park and Skeleton Coast Park (Jacobson et al. 1995). Leggett et al. (2003) provide a detailed description of the research area. The observations reported in this paper were made from January 1998 until March 2003 in the Hoanib and Hoarusib catchment areas. An additional incident of elephant coprophagy was observed at Okaukuejo Rest Camp in Etosha National Park.

Methods

These observations were ad hoc in nature, obtained while researchers were occupied with other observational research. Temperature readings were taken using a hand-held thermometer under the shade of the nearest large tree to the observation. The thermometer was held in the shade at arm's length away from the car for 2 minutes before readings were recorded.

Results

Coprohagy

On 25 August 2002, an adult dominant female was observed to excrete dung loose in texture. A three-month-old female calf (born 29 May 2002) was observed to scrape the dung together with her foot, then she lowered herself onto her front knees and ate some

of the dung. She twice repeated this behaviour before moving off with the herd.

On 24 August 2003, similar behaviour was observed of three adult males. One older male (approx. 45 years) excreted dung of loose texture, which was immediately consumed by a young adult male (approx. 20 years). After 4 minutes, a third male (approx. 40 years) approached the young male, and he also took small amounts of the dung and ingested it.

Thermoregulatory behaviour

On seven separate occasions adult elephants (both male and female) were observed to place their trunk into their mouth and extract water from the pharyngeal pouch (Shoshani 1997), withdraw water and squirt it over their back and behind their ears. These observations were made only on hot days (> 40°C). Young animals were not observed to exhibit this behaviour.

On 7 September 1999 and 1 February 2002 adult female elephants were observed to urinate on sand. Juvenile and subadult elephants then scooped up the wet sand with their trunks and threw it over their backs and behind their ears. These observations occurred with two separate family units; the young elephants varied in age from 3 to 8 years. On both occasions, the temperature was > 40°C with no wind evident.

Discussion

The observations of coprophagy in the juvenile elephant are similar to those reported by Guy (1977) from Sengwa Research Station in Zimbabwe. In both cases it was dominant adult female that excreted and juvenile animals that ate the dung. In neither case did any other adult animal eat the dung. While coprophagy has been observed more often in captive elephants, it is regarded as 'abnormal behaviour' and termed 'faeces manipulation' (Stoinski et al. 2000). It is possible that in the wild it is an attempt by young elephants to obtain necessary gut enzymes to facilitate digestion. In very young elephants like the animal observed, the behaviour could also be 'play', through which the young elephants are simply learning about their environment by sampling anything in their surroundings. The reason for the ingestion of dung by adult elephants is unknown; however, both observed incidents occurred during the time of year when vegeta-

tion was limited in the veld. It was probably some form of dietary supplementation or an attempt to supplement gut enzymes.

Extracting water out of the pharyngeal pouch by placing the trunk into the mouth and sucking water as a thermoregulatory mechanism is well recorded from other areas of Africa (Sykes 1971; Moss 1988). Elephants generally used it as a way of cooling themselves after they have been subjected to some form of stress. In the case reported by Moss (1988), elephants were scared by Maasai tribesmen and fled in panic. When they had calmed down, they extracted water from their pharyngeal pouches to cool themselves. The desert-dwelling elephants appear to use this thermoregulatory mechanism routinely when under no apparent stress other than that from ambient temperature. While scooping and throwing sand is not commonly done to regulate body temperature, young elephants of two different desert-dwelling family units used urine-soaked sand in this way to cool themselves in hot temperatures (> 40°C).

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