

# Osteophagy Behaviour Observed in Indian Spotted Deer (*Axis axis axis: Erxleben*) in Wild at Pench Tiger Reserve, Maharashtra, India

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## Abstract

Pench Tiger reserve, Nagpur, Maharashtra is 25<sup>th</sup> Tiger reserve of India, having 71 mammal species, including Indian spotted deer (*Axis axis axis: Erxleben*). The Indian spotted deer (*Axis axis axis: Erxleben*) is a general feeder, feeding on more than 160 plant species consisting grasses, forbs and leaves of woody plants. Osteophagia term denotes about gnawing on bones, antlers by ungulates mainly due to the phosphorus and Calcium deficiency. Ungulates show such behaviour for fulfilment of nutrition requirements in particular periods as antler growth and lactation. This observation is first reporting of osteophagia behavior by free ranging Indian spotted deer (*Axis axis axis: Erxleben*) in wild.

**Keywords:** Osteophagia • Spotted deer • Wild animal behavior • Lactation • Phosphorus • Calcium deficiency

## Introduction

Pench tiger reserve, Maharashtra is 25<sup>th</sup> Tiger reserve of India, declared in 1999. It is located in Central Indian landscape, encompassing area of 741.22 sq. Km in river basin of Pench, Kanhan and Teliya in foothills of Satpuda ranges. This area harbors 71 species of mammals including spotted deer and Tiger, [1] 310 species of birds and 44 species of odonata [2]. Chital or spotted deer (*Axis axis*) is the third largest deer inhabiting the plains and undulating terrain of India. According to Ellerman JR and Morrison-Scott TCS [3] there are two subspecies viz., *Axis axis ceylonensis* (Fischer) which is confined to Sri Lanka, and *Axis axis axis* (Erxleben) found in the rest of the species Range [4]. Chital are known to feed on more than 160 species of plants [5,6]. Schaller GB [6] showed that graze formed the bulk of the feed of chital, while [1] considered chital primarily a grazer. On the basis of morpho-physiological ruminant feeding types, Hofmann RR [7] classified chital as an intermediate/mixed feeder. Rodgers WA [8] had categorised chital as a generalist feeder, with a diet consisting of grasses, forbs, and leaves of woody plants [9].

The main objective of this study is to report osteophagic behavior reported in spotted deer in wild in India.

## Case Presentation

### Observations

During a regular vehicle patrol on 8<sup>th</sup> January, 2022, a free ranging wild female spotted deer with her calf of age around a month is observed & photographed in Compartment no. 508 of Deolapar range of Pench Tiger reserve, Maharashtra. At first, the said female spotted deer was chewing the bone and tried to rotate it in mouth. Finding this irregular behaviour, author tried to capture the photo but the said bone fell down. Then again the said female tried to hold & chew it. She was not able to break the bone but tried to nibble it. The fawn was not much active and tried to be with mother only (Figure 1).

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## Interpretation and analysis

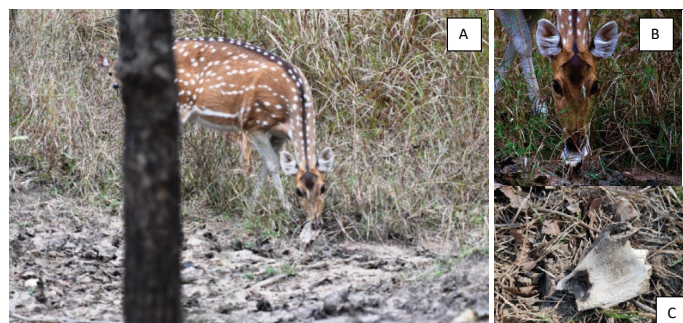
The consumption of bones, antlers, and horns by non-carnivorous mammals is likely motivated by the need to obtain essential minerals absent from a largely vegetarian diet [10-14] and the maintenance of proper phosphorus/calcium ratios in the body [15-17]. Such ratios are critical for female ungulate in reproductive success and improvement in antler size and strength in some male cervids [10,13-15]. There is no particular breeding season of spotted deers but months of December to March considered as peak of fawning season [18].

Ungulates gnaw on animal bones, antlers, and horns, a behavior known as osteophagia, or pica. Some descriptive publications have appeared over the past decades, such as an early paper by Sutcliffe AJ [12] and more recently a report by Clutton-Brock TH, et al. [19]. A number of medium to large ungulate species are reported to gnaw on bones, antlers, and horns, including caribou/reindeer (*Rangifer tarandus*) [12-14], red deer (*Cervus elaphus*) [12,13,19-21], fallow deer (*Dama dama*) [19], mule deer (*Odocoileus hemionus*) [11], elk (*Cervus canadensis*) [10]. Author have not found any report of chewing bones by Indian spotted deer *Axis axis axis* (Erxleben) in wild.

The directly observed case of an adult giraffe gnawing a wild beast element occurred in 1987 in Kyle Recreational Park, Zimbabwe. All other studies referred above are planned activities of feeding antlers, bones etc. The wild spotted deer also shows epiphagia behavior by using natural salt licks.

## Discussion and Conclusion

Based on observation of author and available earlier records, Ungulates



**Figure 1.** (A) Shows the mother spotted deer with bone in mouth and a fawn of nearly a month, hiding his mother, (B) showing bone and (C) shows the bone which is photographed later on.

show osteophagia behaviour for fulfilment of nutrition requirements in particular periods such as antler growth and lactation. The observed free ranging female spotted deer may have chewed bone to fulfill the demand of Phosphorus and Calcium in her lactation period. This is the first report of osteophagous behavior of spotted deer *Axis axis axis* (Erleben) from wild habitat in India.

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