

Assessment of Pray Selection and Food Habit of Carnivore *Panthera Tigris* (Tiger)

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Abstract: Tiger (*Panthera tigris*) is one of the most charismatic large cats and is an icon of biodiversity conservation in India. This species has become the focus of global conservation because of its ecological importance, its endangered status and its cultural affiliations. Prey capture in tigers is plastic, allowing tigers to capture prey of a wide range of sizes and types. Predatory behavior in general is a three-part series of events including prey detection, capture and consumption. Hair samples are the most probable evidence found in the wild life crime scene. Thus, they play a vital role in species identification for wild life forensic investigation. Present study conducted with the aim and objective to find food habit of *Panthera tigris* and to study prey selectivity of *Panthera tigris*. Scat sample was brought to laboratory and washed and kept in the distilled water for 24 hours. After 24 hours again sample was cleanly washed and put into 70% alcohol and two wash of alcohol was given. The present investigations carried out by collecting and scat samples of *Panthera tigris* and brought into laboratory for identification of pray using undigested remain in the scat. Slides were prepared and photographed using Trinocular research microscope. Following observation were made following standard procedure. We found *Boselaphus tragocamelus* (Nilgai), *Semnopithecus entellus* (Langur), *Felis chaus* (Jungle cat) hairs means there exit predatory relationship between *Panthera tigris* and *Boselaphus tragocamelus* (Nilgai), *Semnopithecus entellus* (Langur), *Felis chaus* (Jungle cat).

Keywords: *Panthera tigris*, scat samples, Trinocular and predatory relationship

Introduction

The tiger (*Panthera tigris*) is one of the most charismatic large cats and is an icon of biodiversity conservation in India. This species has become the focus of global conservation because of its ecological importance, its endangered status and its cultural affiliations. Tigers are found across a wide range of habitats in India. Tiger populations are found to be under severe threat across its range, such as mounting anthropogenic pressures on the habitat and increasing incidence of poaching of tigers and their prey animals (Navaneethan *et al.*, 2019). The tiger (*Panthera tigris*) is the largest obligate predator in the Asian temperate and tropical forest ecosystems in which it occurs. The plasticity and constraints in tiger resource acquisition are examined in the context of abrupt and pervasive environmental change throughout the tiger's range changes that threaten its survival. Prey capture in tigers is plastic, allowing tigers to capture prey of a wide range of sizes and types (Scidensticker and McDougal, 1993).

Tricho-taxonomy

Hair samples are the most probable evidence found in the wild life crime scene. Thus, they play a vital role in species identification for Wild life Forensic Investigation. Tricho-taxonomy is one of the methods for identification of mammals based on their hair characteristics which is relatively significant in the study of the

food habits of the carnivores and supportive to control the illegal trade of wildlife and its derivatives. While, the Morpho-taxonomy is unable to provide a fruitful result in case of small part of skin of mammal, the Trico-taxonomy may be used for identification of species on the basis of combination characters (Paramita Saha Sarkar and Joy Krishna De, 2012). The significance of Tricho-taxonomic study is widely accepted in the field of food habit analysis of predators and also in controlling illegal trade of wildlife and its derivatives. The cuticular scale and medullary structures of hair have been widely used in various disciplines like wildlife biology, ethology, conservation, ecology, veterinary and forensic science. The peculiar medullary index for each species is very much useful for species identification/ confirmation and also useful to identify the prey species of large and medium sized carnivores through their scat analysis. The scale count and scale pattern are also found to be important to identify the species with the help of all macroscopic microscopic features of the hair (Raval *et al.*, 2018). The tricho-taxonomy chiefly used for identification of species on the basis of combination characters of hairs of species, when the morpho-taxonomy is unable to provide a fruitful result in case of small part of skin of mammal (Manokaran Kamalakannan, 2017). As animal faeces can give the idea of diet, health, Identifying individuals and population, habitat distribution and ecological importance.

Aims and Objectives

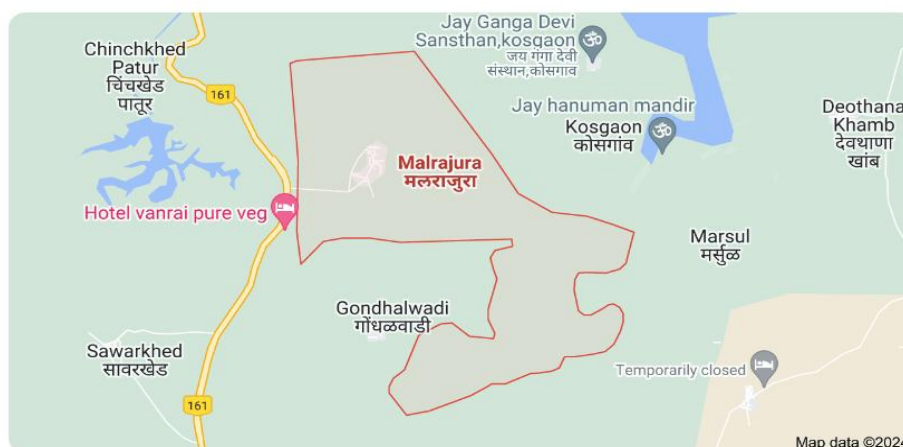
Study consists with following aims and objective as

1. To study food habit of *Panthera tigris*.
2. To study prey selectivity of *Panthera tigris*.

Materials and Methods

Study area:

Malrajura is situated in Akola District, Maharashtra. pincode of Malrajura is 444501. Malrajura latitude is 20.41876 & longitude is 76.88828.



Study Duration:

Study was conducted during January 2024 to March 2024.

Collection of Scat Sample

The Scat sample were collected from the forest of Malrajura prior permission was taken from the forest office, visit to Malrajura was organized by the Department of Zoology where guides were guided the students about the forest the topic of research was accidental as during visit foresters were observed the scat sample and according to the standard method the scat was identified as scat of Tiger and topic of research came to existence. Sample was first photographed and collected in the collecting jar.



Scat Sample

Scat sample was brought to laboratory and washed and kept in the distilled water for 24 Hours. After 24 Hours again sample was cleanly washed and put into 70% Alcohol and two wash of alcohol was given. Hairs were separated and different hairs were identified and hair impression slide was prepared (Sohail Arif Chattha *et al.*, 2011).



Scat Sample Brought to Laboratory

Observations and Results

In present study we identified three animals preyed by Tiger by scat analysis. Namely; *Boselaphus tragocamelus* (Nilgai), *Semnopithecus entellus* (Langur), *Felis chaus* (Jungle cat).

- 1) *Boselaphus tragocamelus* (Nilgai)

Colour of found dark black to brown. The scales marked fragile. The whole mount show visibility of cortex and medulla (Fig. 1).

2) ***Semnopithecus entellus* (Langur)**

The marginal end shown bristles and scales were prominent and intact. Medulla unidentifiable under light microscope. colour of found whitish to greish (Fig. 2).

3) ***Felis chaus* (Jungle cat)**

Blackish to brownish proximal end smooth end blakish which extend to show medullary region with mosaic like structure (Fig. 3).

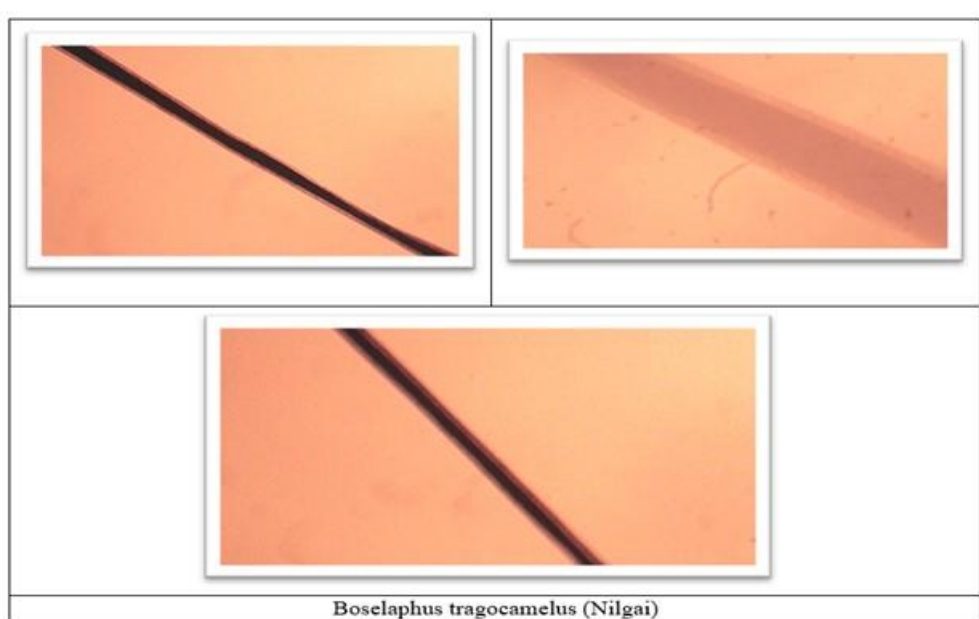


Fig. no. 1

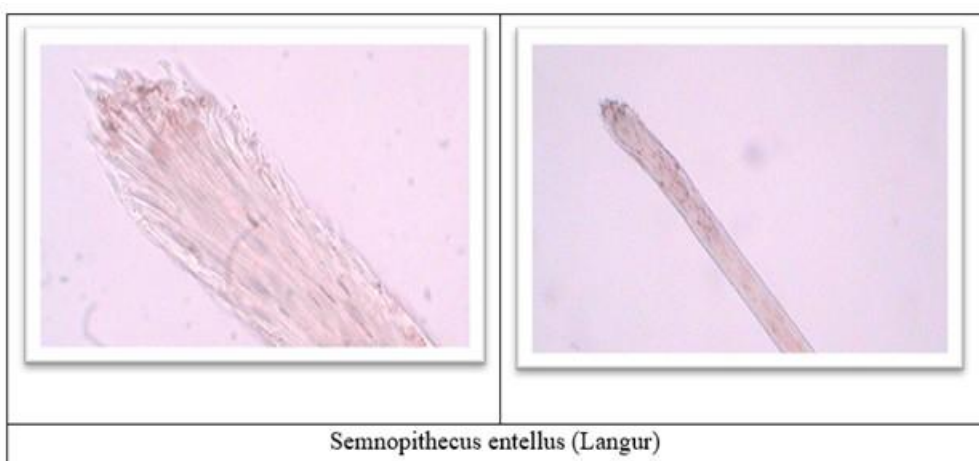


Fig. 2

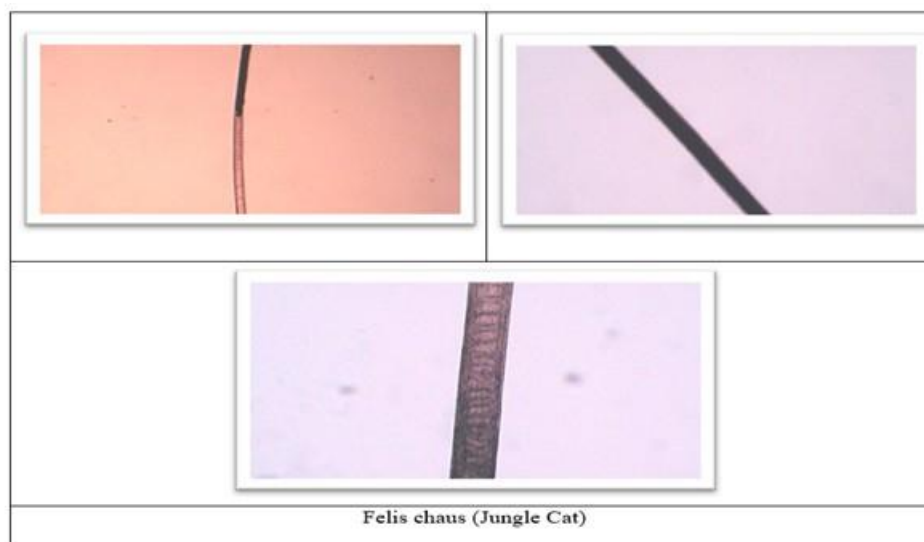


Fig. 3

Discussion

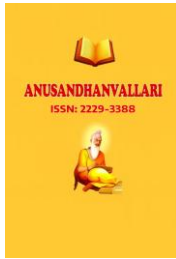
Present study we identified three animals preyed by Tiger by scat analysis. Namely; *Boselaphus tragocamelus* (Nilgai), *Semnopithecus entellus* (Langur), *Felis chaus* (Jungle cat). *Boselaphus tragocamelus* (Nilgai), Colour of found dark black to brown. The scales marked fragile. The whole mount show visibility of cortex and medulla. *Semnopithecus entellus* (Langur). The marginal end shown bristles and scales were prominent and intact. Medulla unidentifiable under light microscope color of found whitish to grayish. *Felis chaus* (Jungle cat), Blackish to brownish proximal end smooth end blackish which extend to show medullary region with mosaic like structure, Farag *et al.*, (2015), Prakash Pun *et al.*, (2022), Charjan *et al.*, (2019), Sohail *et al.*, (2011). Shambhulingappa, (2017) noted the same observation in tiger of their study zone. Singh *et al.*, in his studies analysed remains of monkey in the fecal matter of Lion also some related observations were noted by Upadhyay, 2006. As our investigations suggest that the occurrence of remains of undigested food in scat hair as a main study component and according to observations Langur, and jungle cat observed which also reported by Shirbhate in (2006), in his studies while working on scatology in Melghat region. One interesting observation we noted as presence of Nilgai hair in scat sample suggest that the place Malrajura is suitable habit for the Tiger. Shirbhate (While studying on Prey Predator relationship) in his studies concluded that no occurrence of Nilgai hair sample in his studies observed means no hunt but we found nilgai hair sample in the faecal matter. From foregoing it is confirmed by studies that presence of hairs of Nilgai (*Boselaphus*), Langur (*Semnopithecus*), Jungle cat (*Felis*) in faecal matter of Tiger as shows hunting behaviour and preference of food.

Conclusion

It is concluded that *Panthera tigris* prefers to it small to large mammals. Our investigations and study. Shows that collected scat samples shows remains of *Boselaphus tragocamelus* (Nilgai), *Semnopithecus entellus* (Langur), *Felis chaus* (Jungle cat) hairs means there exit predatory relationship between *Panthera tigris* and *Boselaphus tragocamelus* (Nilgai), *Semnopithecus entellus* (Langur), *Felis chaus* (Jungle cat). Occurance of basofellus remains in scat shows suitable environment for *Panthera tigris*.

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