P: ISSN NO.: 2321-290X RNI : UPBIL/2013/55327 VOL-6* ISSUE-2* October- 2018
E: ISSN NO.: 2349-980X **Shrinkhla Ek Shodhparak Vaicharik Patrika**

Tiger Prey Species in and around of Ranthambhore Tiger Reserve, Rajasthan, India

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Abstract

We observed wild prey and livestock prey for the tiger in and around Ranthambhore National Park, Rajasthan, India which includes sambar, nilgai, wild boar, chinkara as wild prey and cow, buffaloes, goat, sheep, camel as livestock prey. Availability of the prey species in an area is the main factor for the movement of predatory species, there for many tigers are dispersed from Ranthambhore National Park moved out in human landscape area and survive mostly only on livestock prey in human landscape because wild prey is vey less in human landscape areas.

Keywords: Tiger Prey, Wild Prey, Livestock, Line Transect.

Introduction

Tiger *Panthera tigris* the ultimate, mega predator, possibly the most recognized in the world, was declared an endangered mammalian species in IUCN and Wildlife Protection Act, 1972. The tiger is generally divided into, eight subspecies-Bengal tiger *Panthera tigris tigris,* Indo Chinese tiger *Panthera tigris corbetti*, Caspian tiger *Panthera tigris virgata,* Amur tiger *Panthera tigris altaica,* Javan tiger *Panthera tigris sondaica,* South China tiger *Panthera tigris amoyensis,* Bali tiger *Panthera tigris balica,* Sumatran tiger *Panthera tigris sumatrae* (Mazak,1981). Three subspecies the Caspian, Bali and Javan tigers have become extinct since the 1950s (Nowell & Jackson, 1996). In India, estimated tiger population was around 40,000 at the turn of the twentieth century, and numbers dropped to around 1827 in 1972. Availability of prey is thought to be the most important factor determining carnivore's spatial distribution across habitat types and their overall abundance (Carbone and Gittleman, 2002). The density and distribution patterns of large predators, like tigers, are primarily governed by the availability of ungulate prey (Karanth and Nichols, 1998; Karanth and Nichols, 2002). As tertiary consumer, predator plays an important role in regulating prey species such as herbivores and omnivores (Carbone *et al*. 1999). Such predator-prey dynamics maintain the health and balance of ecosystems. Generally, coexistence in carnivores appears to be facilitated by differences in body size (Kiltie, 1984; Rosenzweig, 1966). Since predator body size is usually correlated with the size of prey utilized (Hespenheide, 1973; MacDonald, 1980; McNab, 1971; Rosenzweig, 1966), body size differences often result in the segregation of predators along a continuous prey size resource axis.

Objective of the Study

Observation of the study to understand the Tiger prey species in and around of Ranthambhore Tiger Reserve.

Review of Literature

Bagchi, Goyal and Sankar (2003) studied wild prey abundance in the semi-arid deciduous forests of Ranthambhore National Park, western India, between November 2000 and April 2001 by line transects methods.

Ramesh (2010) studied prey abundance in Mudumalai Tiger Reserve, Tamil Nadu. Majumder (2011) studied prey abundance in Pench National Park, Madhya Pradesh from May 2006 to April 2011.

Varman and Sukumar (1995) evaluated the efficiency of different models and analytical techniques in prey base estimation in Mudumalai wildlife sanctuary.

Seidensticker (1976) used successive belt transects to estimate the densities of the large herbivores in the tall grassland and riverine forest areas in Chitwan national park.

Dinerstein (1980) estimated prey densities based on pellet count method, vehicular transects and counts from observation platforms in Royal Karnali Bardia wildlife reserve.

Research Design

Study Area

The study area is in Ranthabhore National Park and Kailadevi wildlife sanctuary. Ranthambhore National Park is located between latitude $25^0$41 N-$26^0$22 N and longitude of $76^0$16 E- $77^0$14 E and Kailadevi Wildlife Sanctuary is northern extension of Ranthambhore national park and spread over in 670 km^2 within the latitude 26^0 20 N-26^0 21 N and longitude $76^0$37 E- 77^0 13 E. Both protected areas are in semi-arid part of Rajasthan. The present study was conducted in the human landscape around the Ranthambhore Tiger Reserve from 2015 to 2018. The terrain of the study area is undulating to hilly in nature and has numerous narrow valleys. The climate of this tract is subtropical, characterized by a distinct summer, monsoon, post monsoon and winter. The vegetation of Ranthambhore National park and Kailadevi wildlife sanctuary is under Northern tropical dry deciduous forests and Northern tropical thorn forest (Champion and Seth, 1968). The area is representative of dry deciduous *Anogeissus pendula* forests sub type in association with *Acacia, Capparis, Zizyphus* and *Prosopis* species. Dhok *Anogeissus pendula* is dominant species and constitutes about 80% of the vegetation cover. It represents the edaphic climax. Generally found in the hilly areas and maintains luxuriant growth on the gentle slope of the hills due to better soil formation and water holding capacity. *Anogeissus pendula* mixed forest are in certain localities especially on hill slopes *Anogeissus pendula* with other deciduous species like *Sterculia urens, Boswellia serrata, Butea monosperma, Tamarindus indica, Syzygium cumini, Cassia fistula* and *Acacia catechu*. *Anogeissus pendula* being the dominant species, *Boswellia serrata* and *Sterculia urens* occurs on steeper slopes while *Butea monosperma* comes up in valley areas. Such forests are seen all around consisting of shrub species like *Grewia tenax, Grewia flavescens, Capparis decidua, Capparis separia, Cassia tora, Barleria prionitis* and grasses. *Acacia catechu* mixed forests are common on gentle slopes and plains near cultivation areas. The common associates are *Acacia leucophloea, Zizyphus nummularia, Zizyphus xylopyra* and tall grass species like *Eremopogon flaveolatus, Heteropogon contortus, Dichanthium annulatum, Apluda mutica, Acacia catechu* occurs as an associate in almost all the forest types in the Ranthambhore National Park. It forms pure patches in the plains where the soil is deep sandy loam or on dry poor sites where the soil is extremely shallow. It is perhaps one of the best places in the country to monitor the tiger *panthera tigris* because of climatic and vegetational features.

Apart from tiger and leopard *Panthera pardus*, other carnivores present are striped hyena *Hyaena hyaena*, jackal *Canis aureus*, jungle cat *Felis chaus*, common mongoose *Herpestes edwardsi*, small Indian mongoose *Herpestes auropunctatus*, ruddy mongoose *Herpestes smithi*, palm civet *Paradoxurus hermaphroditus*, small Indian civet *Viverricula indica* and honey badger *Mellivora capensis* and omnivore is sloth bear *Melursus ursine.* Wild prey species are in the area include sambar *Rusa unicolor*, chital *Axis axis*, nilgai *Boselaphus tragocamelus*, wild boar *Sus scrofa*, common langur *Seminopithecus entellus*, rhesus macaque *Macaca mulatta*, porcupine *Hystrix indica*, rufous tailed hare *Lepus nigricollis ruficaudatus*, Indian peafowl *Pavo cristatus*, Grey francolin *Francolinus pondicerianus* and black francolin *Francolinus francolinus*. The predominant domestic livestock found inside the study are buffaloes *Bubalis bubalis*, brahminy cattle *Bos indicus*, goats *Capra hircus*, sheep *Ovis aries*, camel *Camelus dromedaries* and donkey *Equus asinus.*

Methodology

Line transects survey method used for observation of the individuals Tiger prey species. Line transects design make habitat types. Transects were walked early in the morning in the first three hours after the sunrise (between 06.30 h and 09.00 h) when the animals are said to be most active (Schaller 1967).

Result & Discussion

The present study provides systematic information for wild prey and domestic prey of tiger. Major wild prey species observed are chital, sambhar, nilgai, wild pig, common langur, rhesus macaque, porcupine, python, peafowl, crocodile, hare, peafowl, grey francolin, black francolin and domestic prey species observed are cow, buffaloes, goat, sheep, camel, donkey, feral dog and wild boar in the diet of tiger. We observed more domestic prey in the diet of tiger compared to wild prey in the study area. We also observed leopard, jackal and hyena were killed by tiger near kill or carcasses in and around of the Ranthambhore Tiger Reserve. The details of wild prey and domestic prey species of tigers are given in the table1.

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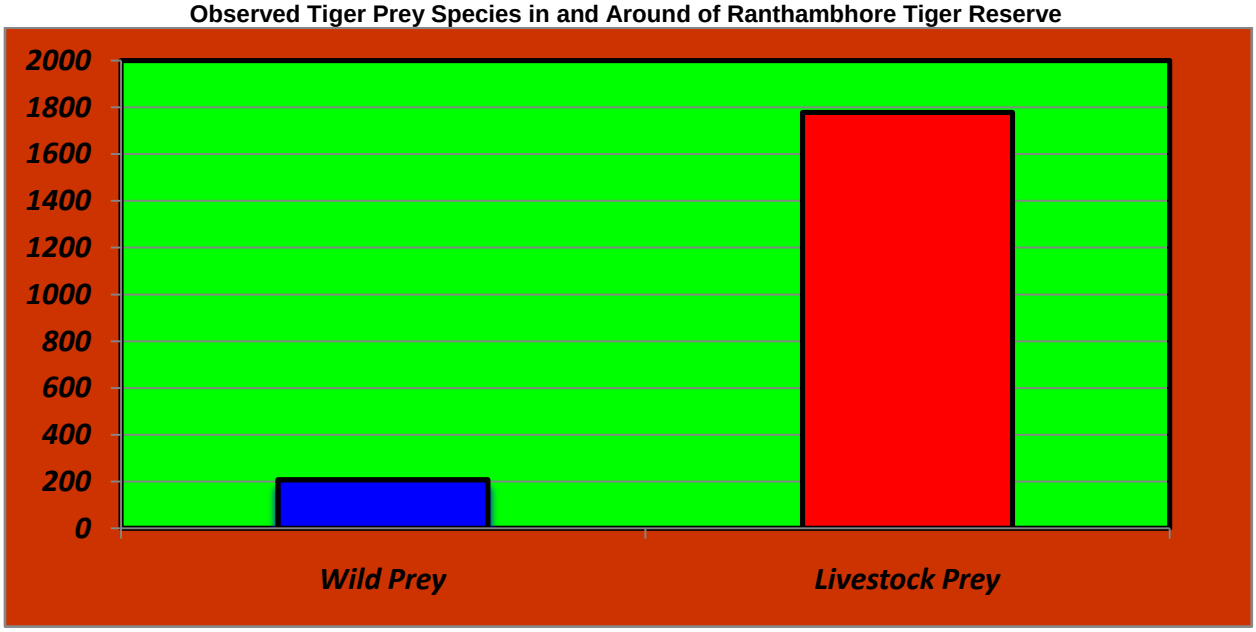
Table 1
Observation Wild and Domestic Tiger Prey Species in and Around of Ranthambhore Tiger Reserve

S. No.	Name of the species	Scientific name	Food Status
		Wild prey species	
1.	Chital	*Axis axis*	Common
2.	Sambhar	*Rusa unicolor*	Common
3.	Nilgai	*Boselaphus tragocamelus*	Common
4.	Wild pig	*Sus scrofa*	Common
5.	Common langur	*Seminopithecus entellus*	Common
6.	Rhesus macaque	*Macaca mulatta*	Common
7.	Porcupine	*Porcupine Hystrix indica*	Rare
8.	Indian Python	*Python molursus*	Rare
9.	Crocodile	*Crocodylus palustris*	Rare
10.	Rufous tailed hare	*Lepus nigricollis ruficaudatus*	Common
11.	Indian peafowl	*Pavo cristatus*	Common
12.	Grey francolin	*Francolinus pondicerianus*	Common
13.	Black francolin	*Francolinus francolinus*	Common
		Domestic species	
14.	Cow	*Bos indicus*	Common
15.	Buffaloes	*Bubalis bubalis*	Common
16.	Goat	*Capra hircus*	Common
17.	Sheep	*Ovis aries*	Common
18.	Camel	*Camelus dromedarius*	Rare
19.	Donkey	*Equus asinus*	Rare
20.	Feral dog	*Canis lupus familiaris*	Common
21.	Domestic pig	*Sus scrofa domesticus*	Common

Figure 1
Observed Tiger Prey Species in and Around of Ranthambhore Tiger Reserve



We observed a total 21 species as tiger prey species this includes 13 wild prey species as 8 mammals, 2 reptiles and 3 birds, 8 domestic species. Wild prey mammals were chital *Axis axis,* sambhar *Rusa unicolor,* nilgai *Boselaphus tragocamelus,* wild pig *Sus scrofa,* common langur *Seminopithecus entellus,* rhesus macaque *Macaca mulatta* and porcupine *Porcupine Hystrix indica*; reptiles were Indian python *Python molursus* and crocodile *Crocodylus palustris*; birds are Indian peafowl *Pavo cristatus,* grey francolin *Francolinus pondicerianus* and black francolin *Francolinus francolinus*. Domestic species were cow *Bos indicus,* buffaloes *Bubalis bubalis,* goat *Capra hircus,* sheep *Ovis aries,* camel *Camelus dromedaries,* donkey *Equus asinus,* feral dog *Canis lupus familiaris,* and domestic pig, *Sus scrofa domesticus*.

The diversity of prey species available at a site determines the distribution of predators such as tigers, leopards and wild dogs (Karanth and Sunquist 1995; Andheria *et al.* 2007; Odden *et al.* 2010). As primary consumers, ungulates significantly affect plant community composition and contribute to nutrient cycling, thus affecting ecosystem functioning, in addition to their direct role in structuring carnivore

communities (Hobbs, 1996; Sankaran *et al.*, 2013; Moe and Wegge, 2008).

Conclusion

Population of livestock prey is higher in the study area compared to wild prey species. This suggests the main cause of survival of tiger in the human landscape area at of the Ranthambhore Tiger Reserve.

Wild prey and livestock prey both are good population in and around in Ranthambhore Tiger Reserve. Sambar, nilgai, wild pig, chinkara, cow, buffaloes, goat and sheep are major food for tigers in Ranthambhore Tiger Reserve. Cause of it Tigers are survived in human landscape of Ranthambhore Tiger Reserve. This also suggests the coexistence of human-wildlife in India is the key factor of wildlife conservation in the various parts of country.

Suggestion

Tigers are dispersed from Ranthambhore Tiger Reserve to human landscape area where prey base is also good and tiger can very good survive. Tiger can survive on livestock base in human landscape because wild prey is vey less in human landscape areas. There for we must include the human's domestic animals population along with wild species together in the conservation management plan of any has given national park and wildlife sanctuaries.

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