

STUDIES OF VALMIKI NATIONAL PARK, BIHAR WITH REFERENCE TO TIGER POPULATION DENSITY

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ABSTRACT

Counting tigers is difficult because they normally lie secretively in the dense forest. Pugmarks (Foot Prints) scratches on trees, calls, faecal analysis, hairs and occasional sightings are the only indication of their presence (WWF2001). Different estimates in different parts of the tiger ranges indicate that the world population of living tigers is 5000-7000 of which two thirds are Bengal tigers (*P.t. tigris*) in the Indian sub-continent (WWF 1999). The home of Bengal tiger is the Indian sub-continent (India, Bangladesh, Nepal and Bhutan) but they are also found in China (Tibet) and Western Myanmar. Habitat manipulation and conservation should always be done to increase tiger population density. It includes conservation of soil and water, improvement of food and control of grazing in Buffer zone.

Key words: Valmiki National Park, Ecology, Population Density, Pugmarks, Habitat Manipulation.

1. INTRODUCTION

The Valmiki National Park is India harborous one of the biggest unfragmented tiger population in the Far East. The National Park is the 18th Tiger Reserve of the country and 2nd in Bihar is located in the northern part of the West Champaran district. Core area was declared as National Park in 1989. The National Park is unfragmented and inaccessible to people, which offers excellent potential for long term conservation of the tigers. Hence the Valmiki National Park has been identified as a high priority area for tiger conservation. Tiger is the pride of the fauna of the Valmiki National park. Tiger is also considered as the flagship or umbrella species to conserve the unique bio diversity of the National Park. The Valmiki National park is located in the Himalayan Terai region of outer Siwalik hill ranges region. It is also the origination region of the great "Gandak" and "Masan" rivers that collect all the water from numerous tortuous tributaries. The Bahabar Dun Sal Forest, Dry Siwalik Sal Forest, Cane Brakes, wet Alluvial Grasslands and Baringtonia Swamp Forest dominate the forest type. This type of habitat is very favourable for Tigers (*P.t. tigris*), leopard (*Panthera pardus*), Wild dog (*Cuon alpinus*), Fishing Cat (*Prionailurus bengalensis*), Chital (*Axix axis*), Sambar (*Rusa unicolor*), Hog deer (*Axis porcinus*), Gaur (*Bos gaurus*), Sloth bear (*Melursus ursinus*), Muggler, Ghariyal and Python Snake. The area also harbours 241 species of birds. Some important species are the Red jungle fowl (*Gallus gallus*), Common pea fowl (*Pavo cristatus*), Kalij pheasant (*Lophura leucomelanos*), Partridges, Quails, Pitta and Flycatchers.

2. MATERIALS AND METHODS

Two year visiting were performed in the selected areas of the Park to observe pugmarks (foot prints), scratches on trees, calls and occasional sightings of the tigers. Radio tracking and camera trapping methods were also used.

3. RESULTS AND DISCUSSION

Tiger ranges vary in accordance with prey densities, while female need ranges suitable for raising cubs. Males seek access to females and have larger ranges (Nowell and Jackson 1996). Thus in areas rich in prey throughout the year such as Nepal's Royal Chitwan National Park and India's Kanha National Park female ranges of 10-39 km² and male ranges of 30-105 km² have been recorded (Sunquest 1981). Karanth and Nichols (1998) estimate shows that densities of tigers more than one year old, ranged from 4.1 ± 1.3 to 16.8 ± 3 tigers/100km².

Table 1: Population density of tigers in different areas of India.

Habitat	Tigers density (No. of tigers/100km ²)	Method	Reference
Kanha, India	6.8	Radio Tracking	Schaller 1967
Kanha, India	15.6	Camera Trapping	Karanth and Nichols 1998
Kanha, India	11.7	Camera Trapping	Karanth and Nichols 2000
Nagarhole, India	13.3-14.7	Camera Trapping	Karanth 1995
Nagarhole, India	15.3	Camera Trapping	Karanth and Nichols 1998
Nagarhole, India	11.9	Camera Trapping	Karanth and Nichols 2000
Nagarhole, India	16.8	Camera Trapping	Karanth and Nichols 2000
Bandipur, India	12	Camera Trapping	Karanth and Nichols 2000

Bhadra, India	3.5	Camera Trapping	Karanth and Nichols 2000
Pench, India	4.9	Camera Trapping	Karanth and Nichols 2000
Ranthambhore, India	8.2	Camera Trapping	Karanth and Nichols 2000
Sundarbans, India	0.8	Camera Trapping	Karanth and Nichols 2000
Valmiki National Park, India	5.1	Radio Tracking	Sunquest 1981
Valmiki National Park, India	2.7-7.1	Radio Tracking	Smith etal. 1999(a)

I. ECOLOGY AND BEHAVIOUR

The ecology of tigers varies in different sub species as well as in different habitat. Tiger population found in a variety of habitats; from tropical evergreen deciduous forest of southern Asia to the coniferous shrub oak and woodlands of the Russian Far East. Today wild tigers habitat is less than 5% of the 1.5 million km² of forest habitat available (Karanth 2001) because the lack of prey base and anthropogenic disturbances do not permit existence of wild tigers in most of the forest areas. Tigers are usually solitary and territorial animal except for females with cubs but they are not anti social (Nowell and Jackson 1996, Sunquest 1981). Males associates with females for breeding and have been observed with females when feeding or resting (Schaller 1997, Mc Dougal 1977, Sankhala 1978, Sunquest 1981). The tiger makes a stealthy approach using available trees rocks or bush as cover to get as close as possible to its target before it launches its attacks. Based on the food abundance tiger travel 7 – 32 km/night (Sunquest 1981). In Valmiki National Park tigers prey mainly on various species of deer and bear throughout the range.

II. TIGER CENSUS: VALMIKI NATIONAL PARK

Survival of a single animal or a plant depends on an entire ecosystem. To maintain a viable population of the supreme predator; the tiger for scientific, aesthetic, cultural and ecological values, we must conserve the entire ecosystem. Special attraction of this National Park has been the existence of large number of tigers. Besides this the forest contains one of the best faunal reserve in the state. Knowledge of the fauna has been acquired on the basis of actual sightings by staff and others. No estimate of the population of various species has been made except tigers and leopards for which organised census were carried out in 1972, 1984, and 1989.

Table 2 : Number of tigers as per 1972, 1984, and 1989 years.

YEAR	ADULT	CUB	TOTAL
1972	14	5	19
1984	53	8	61
1989	64	16	80

The tiger population decreased at an alarming rate in the Valmiki National Park, according to the reports of the tiger census during the years 1990 to 2009. The number of tigers decreased from 80 to 13 only. Tiger population declined due to population pressure, deforestation and poaching. According to a census conducted through the camera trap method by the WWF, there were 22 tigers in the Valmiki Tiger Reserve in 2013. The number of tigers in Valmiki Tiger Reserve has increased from 22 to 28 in 2015 (Forest officials

V.T.R.). The tigers rose in number to 31, plus 9 cubs in 2017. According to senior forest officials (V.T.R) the number of tigers in Valmiki Tiger Reserve during different years as per the following table:

Table 3 :

YEAR	ADULT	CUB	TOTAL
1990	64	16	80
2002	-	-	56
2003	-	-	52
2005	-	-	35
2009	-	-	13
2013	-	-	22
2015	-	-	28
2017	31	9	40

4. CONCLUSION

From the present study concluded that to increase tiger population density it is essential to conserve habitat because habitat is the most significant and viable factor to maintain the diversity and density of the wild life of a particular area. For improving the habitat it is essential to conserve water and soil. The prerequisite for conserving soil and water is implementation of effective fire control measures and protection of area against grazing. Improvement of food and cover with water will enhance the carrying capacity of the National Park. Improved food both qualitatively and quantitatively is essential for supporting greater number of tigers. Tiger population decreases also due to poaching as reported from time to time so poaching must be stopped.

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