

# Panthera Pardus, the Sympatric Species of Tiger, Census from 1976 in Corbett Tiger Reserve: A Study Based on Data Analysis of Three decades, Future Perspective, Ramnagar, Uttarakhand, India

Sanjeev Kumar (M.Sc., FISCA)

Research Scholar, Department of Zoology, Govt. P. G. College, Ramnagar, Uttarakhand India

**Abstract:** *Leopard (Panthera pardus) is an sympatric species of tiger (Panthera tigris) . The morphological attributes of tiger are remarkable to enable the species for successful predation in nature .On the other hand the leopard is more fusible animal with environment and had adapted by all means even in human-dominated areas near the park & reserve forest. However, these source areas require ongoing managerial support and protection with improved field delivery. Being a territorial carnivore which inhabits metapopulation, connectivity is required between “source and sink” populations. In addition, such populations need to be connected with other source areas as well as through corridor for gene flow. As the Kosi corridor of Corbett is merely vanishing. So for genetic viability between two regions i.e. Corbett and Ramnagar forest division should be maintain by protecting the corridor through strict action against anthropogenic stress without political resolution. Present study depicts the leopard census of three decades of its wilderness in Corbett Tiger Reserve. A very honest work of census is required with the carrying capacity of that area with correlation of vital need are the some facts which have importance of reserves and parks.*

**Keywords:** Tiger census, genetic viability, metapopulation, territorial carnivores.

## 1. Introduction

Current census of leopard in Corbett is 117 leopards. Census data had been collected from Corbett Research zone. The data from 1976 to 2010 were analyzed. But in 2008 the census of Leopard had been facilitated, but tiger were not count. Again in 2010 by the WII Dehradun through camera trapping method in areas of 1524 sq Km landscape. Total 214 tiger were estimated. Present study providing the leopard census year wise. From 1992 the area wise description is mentioned. Census of leopard is presented sex wise (male, female, cub & unknown). Data analysis depicts the year wise variation. But data shows regular increase in leopard population. On the other hand the official report shows that in 2010 census were done again by Wildlife Institute of India, Dehradun through camera trapping method and covered the 1525 sq km landscape and provided the data of 214 tiger while the Leopard census is total 117. So till now after the data of WII, the tiger count is 214 (census 2010). The 214 tigers and 117 leopards are feasible in this geographical situation with wild ecology to survive kindly& how much ecological needs of tigers are fulfilling in this area. It may be possible that tigers of Corbett have developed the adaptation for feasibility to survive along with other sympatric species like leopard having prey. If not so than chances of conflict and negative movement (from core to periphery, human dominated places etc) will take place.

## 2. Materials and Methods

Data had been collected from Corbett Research Range (shod range).Sex and year wise census of tiger was analyzed. From 1976 to 1991 the data were not shown area wise but after 1991right from 1992 census was categorize in Park area, buffer zone and KTR (kalagarh tiger reserve) in Table 1.

Study area- So as far as study area is concerned, the Corbett the land of roar is chosen for this study.

**Table 1:** Detail of Leopard census in Corbett Tiger Reserve from 1976 (three decades data)

Year	Leopard				Total
	Male	Female	Cub	Unknown	
1976	17	8	9	3	28
1977	14	18	15	3	35
1978	16	17	6	-	33
1979	15	20	11	1	36
1980	11	9	14	-	20
1981	15	21	6	8	44
1982	16	23	7	8	47
1983	17	25	6	6	48
1984	19	23	6	1	43
1985	15	26	6	-	41
1986	22	18	4	1	41
1987	22	19	10	1	42
1988	23	19	3	-	42
1989	18	23	6	-	41
1990	18	23	7	1	42
1991	16	20	11	2	38

### 1992

Park	17	22	2	-	41
Buf.Z	4	7	1	-	12
KTR	16	27	2	-	45
Total	37	56	5	-	98

### 1993

Park	16	24	2	-	42
Buf.Z	4	9	1	-	14
KTR	16	26	2	-	44
Total	36	59	5	-	100

### 1994

Park	15	24	1	-	40
Buf.Z	7	9	2	-	18
KTR	18	24	2	-	44
Total	40	57	5	-	102

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**1995**

Park	14	23	2	-	39
Buf.Z	22	33	3	-	58
KTR	6	6	1	-	13
Total	42	62	6	-	110

**1997**

Park	16	21	3	-	40
Buf.Z	20	32	7	-	59
KTR	6	4	-	-	10
Total	42	57	10	-	109

**1998**

Park	17	21	2	-	40
Buf.Z	20	38	5	-	63
KTR	3	5	-	-	8
Total	40	64	7	-	111

**1999**

Park	14	22	-	-	36
Buf.Z	23	30	7	-	60
KTR	3	8	3	-	14
Total	40	60	10	-	110

**2001**

Park	17	14	2	-	33
Buf.Z	23	24	2	-	49
KTR	4	13	-	-	17
Bs.S.	-	4	2	7	13
Total	44	55	6	7	112

**2003**

Park	26	18	-	1	45
Buf.Z	18	30	1	-	49
Sn.S	3	6	-	-	9
Bs.S.	4	5	4	2	15
Total	51	59	5	3	118

**2005**

Park	18	20	1	-	39
Buf.Z	17	30	1	-	48
Sn.S	4	5	-	-	9
Bs.S.	5	5	2	4	16
Total	44	60	4	4	112

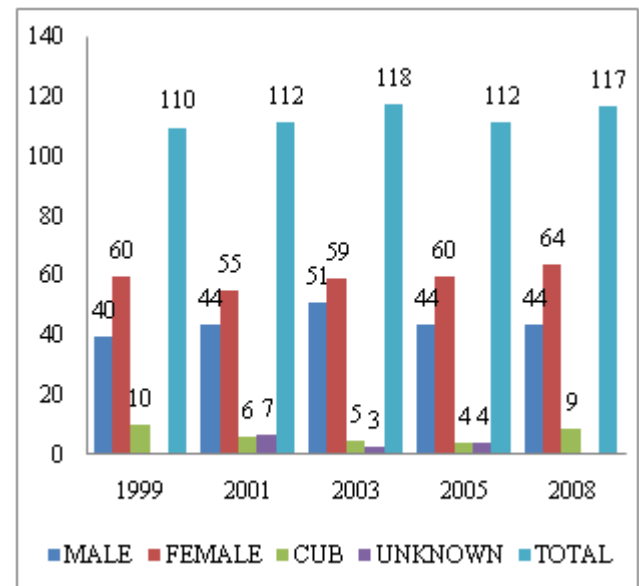
**2008**

Park	13	24	2	-	39
Buf.Z	21	24	2	-	47
Sn.S	6	8	2	-	16
Bs.S.	4	8	3	-	15
Total	44	64	9	-	117

Source- Corbett Research Range (Official)

### 3. Result and Discussion

Total 39 years data were analyzed for this study. From 1992 the data were categorized in area or zone wise like Park area, buffer zone, kalagarh tiger reserve and from 2001 the Sonanadi & Binsar sanctuary are included.

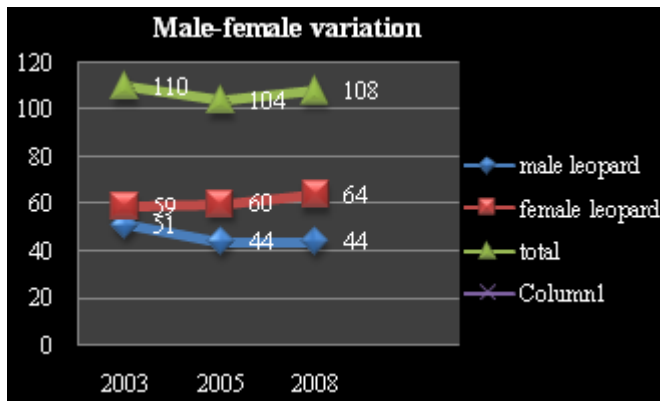


**Figure 1:** Showing the census data sex & age wise from the year of 1999-2010

Now total numbers of Leopard in the Corbett are 117 as per 2010 census reported by WII through camera trapping. On the other hand after analyzing the census the area wise ecological need must be fulfill than wild tiger can survive otherwise if carrying capacity in terms of prey biomass and other sympatric species like leopard etc will decrease than conflict and other ecological pressure will exert on tiger population. Result show that number of male are increased while no. of female from 2005 are not in ratio. So this depicts the variation in genetic viability & sex ratio in wild.

### 4. Discussion

As current data shows that numbers of male tiger are increased while female are not accordingly. It indicates that disturb sex ratio in wild for tiger wilderness. Corridor is nearly vanishing in eastern boundary of Corbett linked with Ramnagar forest division along with Kosi river. We have to come over with this futuristic problem for gene flow & genetic viability between two vital region i.e. Corbett & Ramnagar forest division. Overall the data provided by Corbett research range showing the increasing number of big cat its good but for future perspective carrying capacity of area must be analyze scientifically. The critical condition shown in table (fig 1) i.e. the total numbers of leopard are more in buffer zone in rest of core area. If the number are more in buffer it means the chances of conflict is more in human dominated area. Total 214 tiger plus 117 leopards are surviving in 1524 sq. km area. Overall total 331 big cats are in Corbett. It means if 1524 sq. km. is divided by 331 then we can calculate the area for one big cat and that is  $1524/331=4.60$  sq. km. It means it is near about 5 km./sq/leopard or tiger is available in this area and as per ecological need for vital survive is not enough.



**Figure 2:** Graphical presentation of Year wise variation between male & female leopard

## 5. Conclusion

In 1524 Sq.km. Landscape there are 117 total tiger are roaring as per WH (2010) report. So if this area is divided by the number of tiger than we can estimate the area of one tiger & it may be  $1524 / 117 = 13.02$  Sq. km. per leopard. It may be possible that tiger have a big challenge in terms of prey biomass and carrying capacity etc. In future the inter and intra specific struggle will occur. Because total 214 tigers are also in the same area.

## 6. Acknowledgement

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