

Research Article (Open access)

Comparative Analysis of Census of Tiger (*Panthera tigris*) with its sympatric species Leopard (*Panthera pardus*) in Corbett Tiger Reserve from 1987, Ramnagar, IndiaSanjeev Kumar^{1*}, Dr. Kamad Kumar²¹FISCA, Dept. of Zoology, Govt. P.G. College, Ramnagar, Nainital (Uttarakhand), India²Associate Prof. & Head, Dept. of Zoology, Govt. P.G.College, Ramnagar, Nainital (Uttarakhand), India

ABSTRACT- The effect resulted in the mapping of tiger occupancy and relative abundance, prey abundance indices, anthropogenic pressure indices and habitat quality across 17 states known to harbor tiger populations. Both the big cats i.e. Tiger & Leopard show territorial behavior. The leopard is sympatric to the tiger and more furious than the tiger. Leopards have good habit or quality to survive in the human-dominated landscape while on the other hand tiger occasionally move in the human-dominated area. It may be for livestock predation etc. Mortality is very high in tiger, on the other hand, we can say that the survival rate is low in tigers. Inter-specific as well as an intra-specific struggle is more in these animals. Fragmentations of habitat, ecological pressure, vital need, breeding season, etc are the cause of conflict and mortality, etc. This study depicted that the comparative analysis of the tiger & leopard census, which ultimately provides the idea of dynamics of the population of both the big cats.

Key words- Fragmentation of habitat, Ecological pressure, Vital need, Inter or intra specific struggle

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INTRODUCTION

Felids like Tiger (*Panthera tigris*) and Leopard (*Panthera pardus*) are the umbrella species of a ecosystem. Presences of big cats in forest are the healthy sign of habitat. There are many ecological cum sociological reasons of mortality among tiger and leopard. Mostly natural and sometime anthropogenic stress (Harihar *et al.*, 2009) leads mortality while on the other hand ecological causes like carrying capacity and inter or intra-specific struggle. During breeding season (Nov-Feb).

The natural fighting is very common and mortality rate will generally increase. Territorial fight and fight for breeding is very common. Sometime, it happens extreme injured tiger come out from core to human-dominated landscape in search of easy prey and shelter & ultimately this situation may bring the conflict (Cardilio *et al.*, 2005), which may be negative for both man and tiger. Sometime this situation leads very dangerous situation. For this study I had taken near about 30 years data of big cat's census (Tiger & Leopard) with detail. Corbett is a land of roar. The survival rate is very low in the big cats, ecological need (Madhusudhan, 2004) and vital requirements (Bagchi *et al.*, 2003) are highly needed in wild for wild eco-services like water hole and prey species conservation (Baidya, 1980) are major factor by which chances of survival will increase.

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Received: 18 Jan 2016/Revised: 06 Feb 2016/Accepted: 26 Feb 2016

MATERIAL AND METHODS

Census data had been collected from Corbett Research Range (Shod range). Both the data of tiger and leopard were analyzed. In 2007-08 tiger census were not facilitated. It was done again in the year 2010. From 1976 to 1991, the data were not shown area wise but after 1991 right from 1992 census was categorized in Park area, buffer zone and KTR (Kalagarh tiger reserve) in Table 1. Analyzed properly

and comparatively both the carnivore species from data provided by the Corbett Research zone. All data shows that tiger census with its sympatric one that is leopard.

Study area- Corbett Tiger Reserve was chosen for this study. Corbett is itself famous all around the world for its wild beauty & tiger with other marvelous wildlife.

Table 1: Details of Tiger & Leopard census in Corbett Tiger Reserve from 1976

Year	Tigers				Total	Leopard				Total
	♂	♀	CUB	UN		♂	♀	CUB	UN	
1976	25	23	9	-	57	17	8	3	-	28
1977	27	31	15	-	73	14	18	3	-	35
1978	36	37	6	-	79	16	17	-	-	33
1979	37	39	11	-	87	15	20	1	-	36
1980	34	39	14	-	87	11	9	--	-	20
1981	42	41	6	-	89	15	21	8	-	44
1982	39	45	7	-	91	16	23	8	-	47
1983	38	48	6	-	92	17	25	6	-	48
1984	35	49	6	-	90	19	23	1	-	43
1985	36	49	6	-	91	15	26	-	-	41
1986	34	51	4	-	89	22	18	1	-	41
1987	29	51	10	-	90	22	19	1	-	41
1988	39	50	3	-	92	23	19	-	-	42
1989	43	42	6	-	91	18	23	-	-	41
1990	42	43	7	-	92	18	23	1	-	42
1991	35	45	11	-	91	16	20	2	-	38
1992										
P.A	36	50	6	-	92	17	22	2	-	41
BUF.Z	1	3	1	-	5	4	7	1	-	12
KTR	10	14	1	-	25	16	27	2	-	45
Total	47	67	8	-	122	37	56	5	-	98
1993										
P.A	32	51	5	-	88	16	24	2	-	42
BUF.Z	3	5	1	-	9	4	9	1	-	14
KTR	11	15	-	-	26	16	26	2	-	44
Total	46	71	7	-	123	36	59	5	-	100
1994										
P.A	33	52	5	-	90	15	24	1	-	40
BUF.Z	4	6	1	-	11	7	9	2	-	18
KTR	9	17	1	-	27	18	24	2	-	44
Total	46	75	7	-	128	40	57	5	-	102
1995										
P.A	31	51	8	-	90	14	23	2	-	39
BUF.Z	9	12	3	-	24	22	33	3	-	58
Sn.S	9	11	-	-	20	6	6	1	-	13
Total	49	74	11	-	134	42	62	6	-	110
1997										
P.A	42	43	6	-	91	16	21	3	-	40
BUF.Z	11	17	4	-	32	20	32	7	-	59
KTR	5	5	5	-	15	6	4	-	-	10

Total	58	65	15	-	138	42	57	10	-	109
1998										
P.A	39	43	12	-	94	17	21	2	-	40
BUF.Z	13	17	2	-	32	20	38	5	-	63
KTR	6	9	-	-	15	3	5	-	-	8
Total	58	69	14	-	141	40	64	7	-	111
1999										
P.A	29	44	10	-	83	14	22	-	-	36
BUF.Z	16	19	1	-	36	23	30	7	-	60
KTR	5	10	-	-	15	3	8	3	-	14
Total	50	73	11	-	134	40	60	10	-	110
2001										
P.A	32	44	9	-	85	17	14	2	-	33
BUF.Z	11	17	2	-	30	23	24	2	-	49
KTR	8	14	-	-	22	4	13	-	-	17
B.San	-	-	-	-	-	-	4	2	7	13
Total	51	75	11	-	137	44	55	6	7	112
2003										
P.A	33	51	8	-	92	26	18	-	1	45
BUF.Z	18	17	2	-	37	18	30	1	-	49
Sn.S	5	8	1	-	14	3	6	-	-	9
B.San	-	-	-	-	-	4	5	4	2	15
Total	56	76	11	-	143	51	59	5	3	118
2005										
P.A	28	54	10	-	92	18	20	1	-	39
BUF.Z	12	18	-	-	30	17	30	1	-	48
Sn.S	7	12	-	-	19	4	5	-	-	9
B.San	-	-	-	-	-	5	5	2	4	16
Total	47	84	10	-	141	44	60	4	4	112

In 2007 tiger census were completed by WII Dehradun with the help Camera trapping and total 164 tiger were found in 1524 Sq. Km. Landscape in which the number of cubes were not included.

2008										
P.A	Tiger (Panthera tigris) census were not facilitated only the				13	24	2	-	39	
	Leopard(Panthera pardus) census were									
BUF.Z	Completed. In 2010 the tiger census were done				21	24	2	-	47	
Sn.S	By WII through camera trapping in 1524Sq.Km				6	8	2	-	16	
B.San	In Corbett Landscape and resulted 214 tigers.				4	8	3	-	15	
Total					44	64	9	-	117	

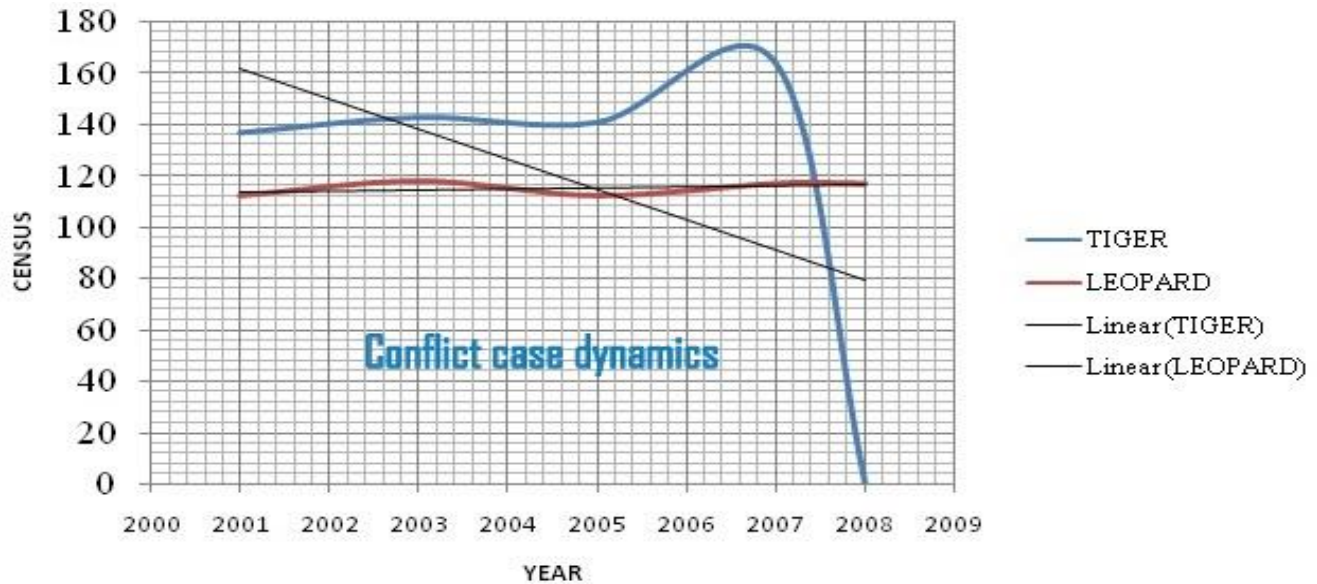
RESULT AND DISCUSSION

Overall 39 years data of census (Tiger& Leopard) were analyzed for this study. From 1992 the data were arranged and categorized in area or zone wise like Park area, buffer zone, kalagarh tiger reserve and from 2001, the Sonanadi and Binsar sanctuary are included. At spot there are total 214 tiger+117 leopards in the area of 1524 Sq .km. So total

331 big cats are dwelling in the park both are sympatric to each other.

Here if we can divide the area by number of individuals than we can get the area for one big cat that is $1524/331=4.6$ sq.km/per tiger or leopard. Ecologically

which are not fit for the vital survival? There are fewer possibilities to fulfill the all vital cum ecological needs of these big cats. Ultimately the carrying capacities of the area/park are in trouble at all.



CONCLUSION

The mortality rate is very high in tiger or leopard population. If the carrying capacity will render than the chances of survival become lower and lower. On the other hand the territorial behaviour plays a key role for ecological need and survival. Inter-specific or intra-specific struggle is very common in such type of situation and after time being it become critical to critical. The prey species and prey biomass is the key point or determinant of big cat's population. Prey biomass and carrying capacity both are the key determinant of big cat's population. On the other hand, in the breeding season the mating fight is also common. Viable partner has also fought to mate for breeding purpose, which leads mortality and loss etc.

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