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Community perception for human wildlife conflict and wildlife offence in Social Forestry Division, Bareilly

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ABSTRACT
Wild species is facing more pressure due to use of wild land for agriculture, development, human settlement, habitat loss and illegal wildlife trade for wild product such as like skin, tusk, nails, horns etc. The study was completed in the Social Forestry Division, Braeilly in 2013–2015. During the study, nilgai, jackel, rhesus macaque, black buck, wild pig, snake, leopard and chital were involved in wildlife conflict. The wild animal species wise conflict faced by the respondents involved crop depredation, attack on humans, road accident and psychological stress with nilgai and wild pig, rhesus macaque, jackal, snake, leopard and Rhesus macaques were also involved in biting on humans, food snatching, generating faeces and repugnant smell. Total 46 cases were registered in seven years whereas 16 cases in Bareilly followed by 14 cases in Anola, 5 cases in Meerganj, 4 cases in Nawabganj, 3–3 cases in Faridpur and Baheri and one was unknown. On the 46 cases, total 69 convict were arrested by the forest department in last seven years.
***Key words**: Human, conflict, offence*

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INTRODUCTION

Fragmentation of natural habitat, deforestation, growing human settlements, expansion of agricultural land and decline the prey species are the few causes behind rising of human wildlife conflict. At the present scenario, wildlife territory areas are disturbing with human existence and various forms of human wildlife occur with various negative results. India is the fast developing economy and among most populous countries with around 17% of the world's human population, the protected area landscapes are not untouched by humans [4]. Human responses to conflict have contributed to species declines, leading to a wide range of mitigation strategies being implemented worldwide. However, causes of conflict are often more complex than expected and factors which can influence human behaviour in these situations need to be understood. Changing human behaviour is the aim of many conservation projects, yet human behaviour remains an undeveloped branch of conservation [2].

Competition for food resources also occurs when humans attempt to harvest natural resources such as fish and grassland pasture. Another cause of conflict comes from conservation biased toward flagship or game species that often threatens other species of concern [6]. Human wildlife conflict also has a range of 'hidden' dimensions that are not typically factored in when the focus is on visible impacts. These can include health impacts, opportunity and transaction costs [1]. As the human population increases and settlements encroach into previously uninhabited areas, human-wildlife conflicts are increasing both in number and intensity [5].

One of the most powerful motives for the exploitation of plant and animal species is income production through trade, especially in poor countries lacking other major resources. Wildlife offence cases are also increase due to human settlement in wild land. In some cases, when a wild animal comes out their territory in human settlements area, they become prey of predators. Different forms of wildlife trade or use (utilization, hunting, trapping, collection or over-exploitation) are the second major threat to endangered mammals and it also ranks among the first ten threats to birds, amphibians and cycads [12]. Dead and living animals are traded for a number of purposes including food, clothing, ornaments, and exhibition in zoos, research, medicines and trophies. With significant profit margins to be made, the

illegal trade in wildlife is flourishing, and even the so-called legal wildlife trade is rife with corruption, and blatant disregard for both international and national laws.

MATERIAL AND METHODS

Study Area

The present study was conducted in Social Forestry Division, Bareilly, Uttar Pradesh. The Bareilly district is located in the north western part of Uttar Pradesh and lies between latitude 28010'N, and longitude 78023'E. There are six Tehsils namely Bareilly City, Anola, Baheri, Faridpur, Meerganj, and Nawabganj and fifteen blocks in Bareilly (Plate 1). Bareilly is located at the borders of Pilibhit and Shahjahanpur on East and Rampur on West, Udham Singh Nagar (Uttarakhand) in North and Badaun in South. It is a level terrain, watered by many streams, the general slope being towards the south. Tracts of forest jungle called the Tarai stretches along the villages have tigers, bears, blue bull, deer and wild boars. The river Sarda or Gogra forms the Eastern boundary of the district and is the principal stream. Next in importance is the Ramganga, which receives as its tributaries most of the hill torrents of the Kumaon mountains. The Deoha is another great drainage artery and receives many minor streams. The Gomati or Gumti also passes through the district.

The study was conducted in 60 villages of Bareilly district under social forestry division. The method consisted of data collection from primary and secondary resources.

(A) Primary data collection

A questionnaire survey and group discussions were also conducted with forest staff and local peoples using a semi structured questionnaire [8]. Multistage random sampling was also used to survey the villages. The survey was performed from 60 villages of six Tehsils namely Bareilly, Nawabganj, Faridpur, Baheri, Meerganj and Aonla. Fifteen peoples were surveyed from each village. Discussions were made with the village council and local residents to have the basic idea about the human wildlife conflict and offence of the wild animals.

(B) Collection of data from secondary resources

The information about the secondary resources for human wildlife conflict and offence cases were collected in the form of published literature such as management plan, previous studies on the government document, official statistics, technical report, scholarly journals, review articles, books, computerized database, the world wide database magazines and newspaper [7, 3]. Information's were also collected from the data available with the forest department and revenue department.

RESULTS AND DISCUSSION

People attitude towards human wildlife conflict

Out of 900 respondents maximum (87.11%) experienced that nilgai were involved in wildlife conflict followed by jackal (58.11%), rhesus macaque (57.11%), black buck (54.11%), wild pig (48.00%), snake (42.89%), leopard (15.67%) and chital (14.78%).

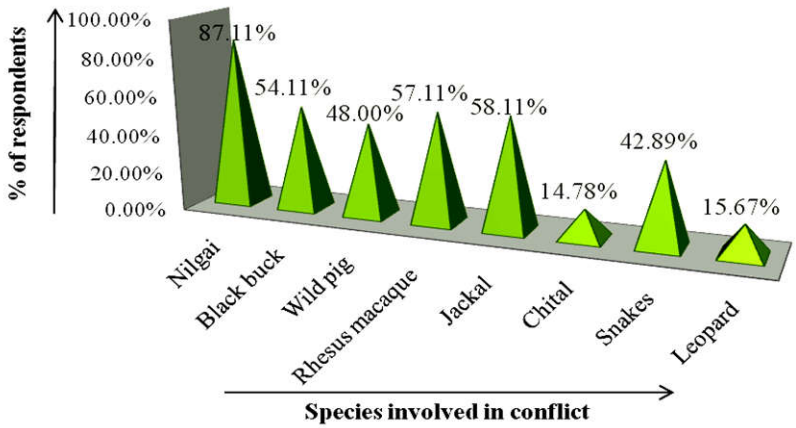

Figure 1: Experience on the species involved in wildlife conflict

On the issue of problems faced by respondents due to wildlife conflict maximum expressed psychological stress (88.22%), followed by crop depredation (82.55%), snatching food items (67.11%), attack on livestock (44.67%), attack on human (37.44%), livestock mauling (28.67%), road accidents (21.67%) and human mauling (20.11%).

The wild animal species wise conflict faced by the respondents involved crop depredation, attack on humans, road accident and psychological stress with nilgai and wild pig, rhesus macaque, jackal, snake, leopard and Rhesus macaques were also involved in biting on humans, food snatching, generating faeces and repugnant smell.

Table 1: Animal species wise problem faced

Species involved in conflict	Kind of problem faced
Nilgai	Crop depredation, attack on humans, road accidents, psychological stress
Black buck	Crop depredation
Wild pig	Crop depredation, attack on humans, psychological stress
Rhesus macaque	Attack on humans, food snatching, crop depredation, generate faeces, repugnant smell, psychological stress
Jackal	Attack on humans, attack on livestock, crop depredation (sugarcane), psychological stress
Chital	Crop depredation
Snakes	Biting on humans and livestock, psychological stress
Leopard	Attack on human, livestock, psychological stress

The herd of nilgai was reported to be as large as 50 animals. The rhesus macaques were observed in troupe of as large as 50-70 animals in roads and temples looking for human food offerings. When asked about the sighting of the wild animals, Out of 900 respondent maximum sighting (38.22%) of nilgai was during dusk followed by dawn (36.77%), all day long (19.11%), afternoon (12.55%) and minimum night (9.22%). Maximum (37.67%) respondents reported the sighting of black buck in dawn followed by dusk (32.33%), afternoon (8.11%), night (6.78%) and minimum all day long (6.55%). Maximum (46.67%) respondents response the sighting of wild pig at afternoon followed by night (43.22%), dawn (34.11%), dusk (13.78%) and minimum all day long (3.55%). Maximum (42.33%) respondents reply to the sighting of rhesus macaque at all day long followed by dawn (37.11%), afternoon (16.55%), dusk (13.67%) and night (2.33%). Maximum (38.11%) respondents answered the sighting of common langur at all day long followed by dawn (32.78%), afternoon (19.33%), dusk (16.11%) and night (1.22%). Among the respondents, maximum sighting (40.11%) of jackal was reported during dawn followed by dusk (39.78%), night (10.11%), afternoon (7.22%) and minimum all day long (2.11%).

The findings showed that the human-wildlife-livestock interface was reported more in rainy season (64.33%) followed by winter (36.78%) and least in summer (31.56%). Out of 900 respondents maximum reported a rise in the population of rhesus macaque (73.33%), followed by those of nilgai (69.55%), wild pig (60.33%), black buck (55.11%), jackal (30.89%) and minimum for chital (1.33%).

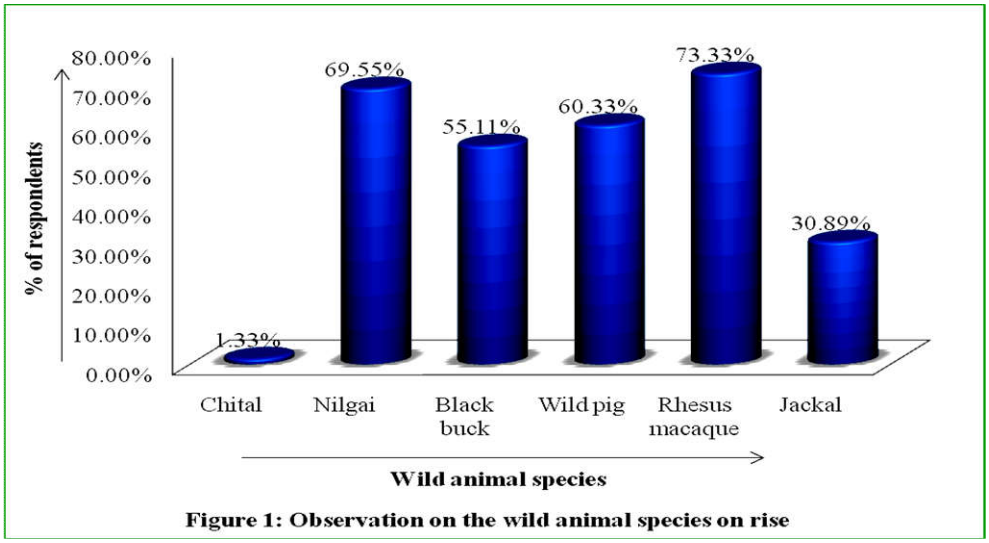

Figure 1: Observation on the wild animal species on rise

Although out of 900 respondents only 635 respondents answered to wild animal hunting, maximum (52.28%) agreed to the hunting of snakes followed by birds (51.59%), nilgai (46.29%), wild pig (45.03%), Rhesus macaque (42.04%), jackal (34.17%), black buck (32.44%) and minimum for chital (4.25%).

Among birds, the hunting was done mostly for the want of their meat. The species hunted involved migratory as well non-migratory bird species. (Little cormorant, lesser whistling duck, little grebe, blue rock pigeon etc.) Out of 635 respondents maximum (77.00%) felt that the hunting of wild animals was done to prevent for crop depredation followed by self-defense (83.93%), trade (31.33%), fun (27.55%) and for food (19.52%). Out of 635 respondents maximum experienced that firearms are the most commonly used method for hunting (32.92%), followed by beating with lathis (21.10%), hunting dogs (14.33%), poisoning (12.44%), use of net/traps (11.97%) and electric current (7.24%).

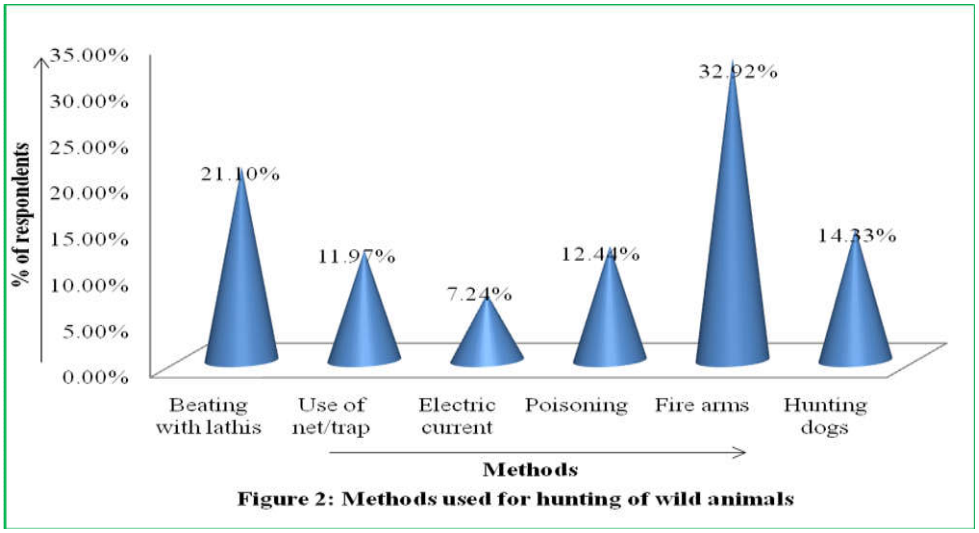

Figure 2: Methods used for hunting of wild animals

Maximum respondents (60.33%) feel that the rehabilitation of wild animals in wild area is most feasible method for managing the conflict, followed by shifting in zoo (46.00%), contraception (22.44%) and killing (16.22%). 8.89% respondents feel that nothing is required while 3.67% showed inability to reply. Most of the respondents (62.78%) reported a rising trend in the population of problematic wild animals followed by those who observed stability in the population of such animals (28.66%) and some who feels that the population is declining (9.54%). Out of 900 respondents maximum (70.55%) agreed on the presence of hunting of wild animals, whereas (29.44%) declined to such incidences. (Table 42)

Wildlife offence cases registered by Social Forestry Division, Bareilly

The maximum number of wildlife offence cases were registered in the year 2012-2013 (13) followed by 2010-2011 (12), 2011-2012 (8), 2009-2010 (6), 2013-2014 (5), 2008-2009 (1) and minimum in 2014-2015 (1). (Table 2) Data shows that the total 46 cases were registered in seven years whereas 16 cases in Bareilly followed by 14 cases in Anola, 5 cases in Meerganj, 4 cases in Nawabganj, 3–3 cases in Faridpur and Baheri and one was unknown. On the 46 cases, total 69 convict were arrested by the forest department in last seven years.

Table 2: Number of wildlife offence cases noticed by Forest Department

S. no	Year	Species of animal	Place	Convict	Total number of cases
1.	2008-2009	Leopard	Mahima Nagla (Meerganj)	Unknown	1
2.	2009-2010	Nilgai	Bareilly	Unknown	6
3.		Deer	Bareilly	1	
4.		Wild boar	Anola	Unknown	
5.		Deer	Bareilly	5	
6.		Nilgai	Anola	2	
7.		Black buck	Unknown	Unknown	
8.	2010-2011	Nilgai	Anola	Unknown	12
9.		Black buck	Bareilly	Unknown	
10.		Peacock	Bareilly	2	
11.		Black buck	Nawabgang	Unknown	
12.		Monkey (Dead)	Bareilly	11	
13.		Hare	Anola	2	
14.		Blue bull	Anola	Unknown	
15.		Leopard	Baheri	Unknown	
16.		Deer	Nawabgang	Unknown	
17.		Deer	Baheri	Unknown	
18.		Nilgai Calf	Anola	Unknown	
19.		Langur	Anola	5	

20.	2011-2012	Scorpion	Bareilly	1	8
21.		Turtle	Bareilly	2	
22.		Turtle	Bareilly	2	
23.		Deer	Bareilly	Unknown	
24.		Peacock	Bareilly	Unknown	
25.		Parrot	Bareilly	1	
26.		Partridge	Meerganj	2	
27.		Owl	Meerganj	2	
28.	2012-2013	Black buck	Anola	2	13
29.		Nilgai	Bareilly	1	
30.		Sambar	Anola	Unknown	
31.		Peacock	Anola	1	
32.		Monkey (dead)	Bareilly	Unknown	
33.		Black buck	Meerganj	Unknown	
34.		Nilgai	Anola	Unknown	
35.		Nilgai	Anola	Unknown	
36.		Nilgai	Nawabgaj	2	
37.		Nilgai	Anola	10	
38.		Black buck	Faridpur	Unknown	
39.		Nilgai	Faridpur	10	
40.		Sambar	Meerganj	Unknown	
41.	2013-2014	Nilgai	Bareilly	1	5
42.		Nilgai	Bareilly	Unknown	
43.		Black buck	Nawabganj	Unknown	
44.		Nilgai	Anola	Unknown	
45.		Wild boar	Baheri	3	
46.	2014-2015	Nilgai	Faridpur	6	1
Grand total					**46**

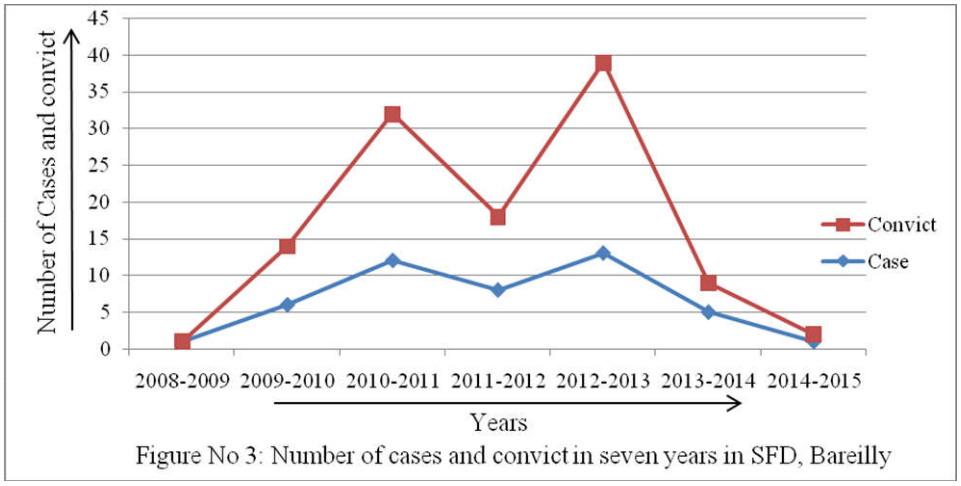

Figure No 3: Number of cases and convict in seven years in SFD, Bareilly

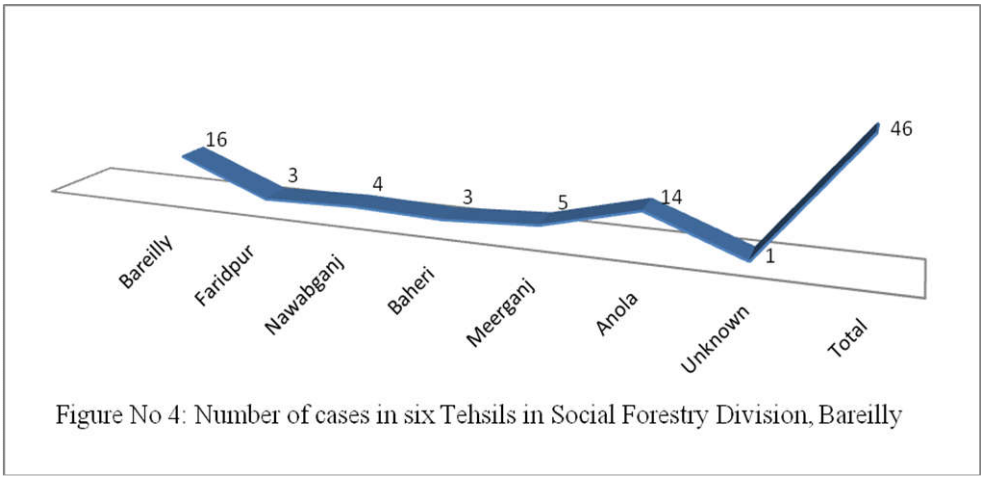

Figure No 4: Number of cases in six Tehsils in Social Forestry Division, Bareilly

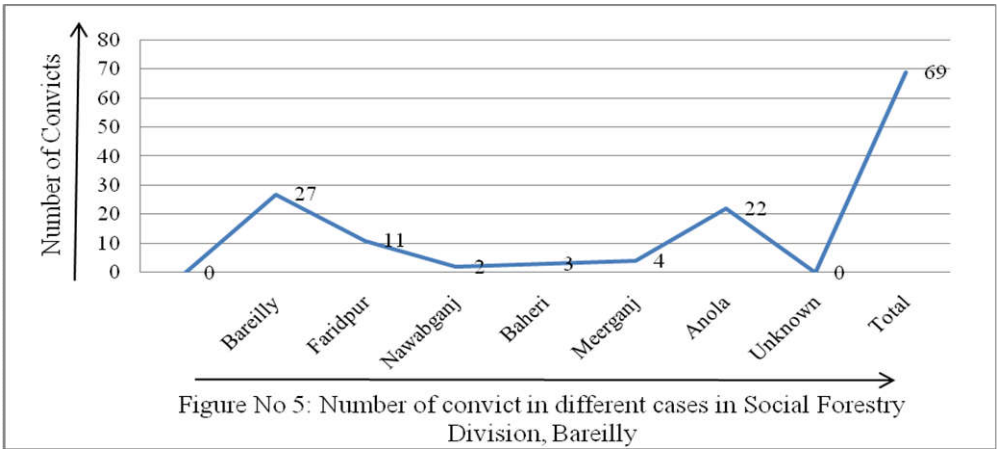

Figure No 5: Number of convict in different cases in Social Forestry Division, Bareilly

The data for the last seven years showed that maximum affected species was turtle (215) followed by parakeet (220), monkey (40), blue bull (15), partridge (8), black buck (7), peacock (7), deer (5), hare (3) and sambhar (3). There were two cases registered each for wild pig and leopard. The owl and langur were least affected with only one number for each of these species. (Table 3)

Table 3: Species wise number of animals affected in wildlife offence cases

Name of animal	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Total
Leopard	1	-	1	-	-	-	-	2
Nilgai	-	2	3	-	6	3	1	15
Black buck	-	1	2	-	4	-	-	7
Wild pig	-	1	-	-	-	1	-	2
Deer	-	2	2	1	-	-	-	5
Sambhar	-	-	-	-	2	1	-	3
Monkey	-	-	35	-	5	-	-	40
Langur	-	-	1	-	-	-	-	1
Hare	-	-	3	-	-	-	-	3
Turtle	-	-	-	215	-	-	-	215
Owl	-	-	-	1	-	-	-	1
Peacock	-	-	5	1	1	-	-	7
Parakeet	-	-	-	220	-	-	-	220
Partridge	-	-	-	8	-	-	-	8
Total	**1**	**6**	**52**	**446**	**18**	**5**	**1**	**529**

Thomassen *et al.* [11] pointed out that conflict occurs in a variety of contexts, when wildlife species raid agricultural crops, damage property, kill people or livestock or spread diseases. Such wildlife species include mammals such as elephant, wild pig, porcupine, deer, antelope, tiger, leopard, lion, wolf and monkey, many birds and reptiles. They also documented that predation of children by wolf has been sporadic but can strike terror locally for months or years; in recent years this problem has surfaced in Uttar Pradesh and Karnataka.

Stephanie [10] reported in Mumbai that the leopard entered neighborhoods surrounding the Sanjay Gandhi National Park and killed several people, as a surrounding burgeoning population besieges the park itself where poaching and illegal woodcutting is rife.

Singh [9] in his studies at Social Forestry Division, Allahabad documented year wise poaching/ illegal trade cases reported maximum 5 in during 2007-08 followed by 4 in 2008-09, 2 in 2010-11 and one case each in 2008-09 and 2011-12 (till 31/07/2011).

The study conducted by Singh [9] reported the year wise details of wildlife trade and offense cases in Social Forestry Division, Allahabad between the periods from 26/06/2004 to 11/01/2013 which showed the involvement of 4353 wild animals in offense cases. Illegal transit of 3605 (60 bora) live turtle by truck, smuggling of 222 tortoises in Brahmaputra mail and illegal transportation of 424 tortoises were the main seizures. Besides this the killing of peafowl, nilgai, wolf, python, hyaena, palm civet, porcupine, wild pig, jungle cat and monkeys were also reported.

Chouksey [4] documented in his study that poaching was a serious problem in and around the Bandhavgarh Tiger Reserve. The incidents of poaching cases were maximum for chital (25) followed by wild pig (14), sambar deer (8), nilgai (8), tiger (4), porcupine (2), mongoose (1), leopard (1) and 11 other

cases during 1980 to 2011. Common methods used for poaching were killing the animals by the use of locally made weapons (tangi, dakaichi), gun, saw set, snare, electrocution, poisoning etc. Poaching of animals also exerts psychological stress on animals and they start treating human beings like an enemy and begin charging and attacking on them for safety.

The major wildlife species involved in conflict were nilgai, wild pig, rhesus macaque, jackal, leopard and snakes. All these wild animals also exerted psychological stress on resident human population. Occasionally the animals were killed also. The killing of snakes was one of the most common practices in the area. Turtle and parakeet was the highly trade species in the area. Conservation plan, the monitoring of wild species and awareness should be planed by the forest department, identifying the partners and collaborations with potential NGOs.

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