

AN ASSESSMENT OF THE-ASIATIC BLACK BEAR-HUMAN CONFLICTS IN KUPWARA DISTRICT,
JAMMU & KASHMIR, INDIAC.S. SANWAL¹ AND RAHEEL ANWAR LONE*Department of Forestry and Natural Resources,
Punjab Agricultural University, Ludhiana-141 004, India.*

ABSTRACT

The survey focussed to assess the nature and extent of the human-Asiatic black bear (*Ursus thibetanus*) conflicts in the Kupwara district recorded 68 cases of human casualties by black bear reported during 2005 to 2011. Male casualties by black bear were more (60.29%) than females (39.70%). Maximum human casualties (23.53%) were recorded during 2010 to 2011, showing increasing trend in human-black bear conflicts. Average data during 2005 to 2011 revealed marked monthly occurrence of attacks with highest in August (26.47%) followed by July (13.23%). Maximum cases of bear attacks on human occurred at crepuscular times (44.11%) in crop fields (51.47%). Drumming of empty tin or metal containers is the most commonly traditionally used protection measure, as 71% respondents reported using this technique. Recommendations include monitoring high conflict areas, public education and awareness to change the intolerant attitude of public towards black bear, etc. are some measures which may help to minimize the human-black bear conflicts.

Key words: Asiatic black bear (*Ursus thibetanus*), human-wildlife conflict, casualties, mitigation strategies.

Introduction

Human-wildlife conflict is a growing global problem. It is not restricted to a particular geographical region, but is common to all areas where wildlife and human population coexist and share limited resources. Human - Wildlife conflicts have existed since long back but the intensity of these cases has increased in recent years. As human population expand and natural habitats converted for cultivation, people and animals conflicts are certain. Fragmentation of forests, expansion of agricultural fields, human encroachment, unsupervised livestock grazing and over-exploitation of resources not only destroy the habitat of wild animals but also leads to strong black lash from people resulting in confrontation (Charoo *et al.*, 2011). The impacts are often severe; people lose their crops, livestock, and many times their lives. Asiatic Black bear (*Ursus thibetanus*) -human conflict is a major concern throughout the western Himalayas and particularly in the Kashmir valley of Jammu and Kashmir State. In Jammu and Kashmir, Himachal Pradesh, Uttarakhand and a few North-eastern states, human casualties and livestock killing by leopard and bears is a serious concern (Chauhan and Sethy, 2011). Kashmir being a valley has an interspersed of orchards, croplands with human habitations and forest. The movement of bears for food outside these forest areas in search of cultivated crops lead to close

encounters of man and bear, and sometimes to conflict. The black bear-human conflicts in Kashmir region are in the form of crop damage, livestock predation, human attacks and sometimes even human death (Charoo *et al.*, 2011). In Kashmir region, there have been 261 cases of bear attacks on human beings during 2000-06 (Akhtar and Chauhan, 2010). Another study by Charoo *et al.* (2011) revealed 19 incidences of human casualties by black bear in Central and South Wildlife Divisions of Kashmir region during 2007-09.

Due to good forest cover and food availability, a sizable population of black bear thrives in the Kashmir valley. As per the 2005 survey (Sathyakumar and Choudhury, 2008), the status of black bear in the state of Jammu and Kashmir has been reported as 'fairly common'. Sathyakumar and Choudhury (2008) have reported that the black bear is present in 16 protected areas, 20 forest divisions, reserved forests and forested valleys of Jammu and Kashmir State. Legally, Himalayan black bear enjoys protection under Schedule II of Jammu and Kashmir Wildlife Protection Act 1978. During the last few years, wildlife damage problems have evolved into a big problem in Kashmir region, which resulted in considerable economic loss of crops, bear attacks on humans, and ultimate retaliatory killing of bears. The paper deals with the nature and extent of human-black bear conflict and mitigation strategies.

Minimization of human black bear conflicts outside protected areas will depend largely on change in intolerant attitude through community based conservation and by improving rural livelihoods.

¹ Indira Gandhi National Forest Academy, New Forest, Dehradun (Uttarakhand)

The Study Area

Administratively, the Department of Wildlife Protection works under three Wildlife divisions (Central, North and South) in Kashmir region. Kupwara is one of the four districts falling under the North Wildlife Division of Kashmir region with a geographical area of 2379 km² with an altitudinal range of 5,300 ft to more than 10,000 ft above mean sea level. The district head quarter is about 100 km from the summer capital Srinagar. The entire area is between 73° 10' to 73° 16' E and 34° 17' to 34° 21' N. It is bounded by Ladakh Division in the north-east, in south by district Baramulla and by the line of actual control in North West. According to 2011 census, the population of the district is 8,75,564 with a density of 308 inhabitants per km² (<http://www.indiastat.com>). Agriculture and its allied activities are the predominant sources of income. Topography of the district is undulating with high ruggedness in its terrain. The district is split up naturally in to two physiographic units viz. the mountains and the valleys. The important mountain ranges are Kajnag, Shamsbari, Ismailindoor and Feshiltong while the valleys comprises of Lolab valley, Bungus valley, Keran valley and Machil valley. The district Kupwara has four distinct seasons: Spring (March-May), Summer (June-August), Autumn (September–November) and Winter (December–February). Kupwara is the backward frontier district of Kashmir Valley full of scenic beauty, dense forests and rich wild life make it significant for tourism and biodiversity. Nature has been very kind to this district, which abounds snow clad mountains, evergreen forests and green meadows all around. Kupwara district has 1,160 km² of forest cover, which is 48.76% of its geographical area (FSI, 2011, Figure 1). The forest in the Kupwara district of Kashmir region are rich in deodar (*Cedrus deodara*), fir (*Abies pindrow*), blue pine (*Pinus wallichiana*), etc. It has a high faunal diversity and is home to common leopard (*Panthera pardus*), Asiatic black bear, Jungle cat (*Felis chaus*), leopard cat (*Felis bengalensis*), Tibetan wolf (*Canis lupus langer*), brown bear (*Ursus arctos*), Hangul or Kashmir red deer (*Cervus elaphus hanglu*), Himalayan musk deer (*Moschus chrysogaster*), snow leopard (*Panthera uncia*), Himalayan ibex (*Capra ibex sibirica*) and markhor (*Capra falconera cashmirensis*) are some important mammals. Kashmir valley is well known for humans having conflicts with black bear and leopard. Occasionally Tibetan wolves will also kill or injure people (Akhtar and Chauhan, 2010).

Methods

Information on human-black bear conflict was collected from the records of office of the Wildlife Warden (North) at Sopore, Baramulla district. Prior to the

study, the human-black bear conflict issue was discussed with wildlife officials and field staff. The survey was conducted from February to June 2011. Based on the information gathered, place of incidences and villages were surveyed. The questionnaire survey of affected villages located on the periphery of forest areas was carried out to get the information about the nature and extent of conflicts through interviews by using native language Kashmiri and Hindi with adequate Urdu words to put the interviewee at ease. Data on human black bear interactions, location, time and seasonality of incidences and causes of conflicts were collected via a questionnaire. Information on local protection methods used for conflict mitigation against losses was also recorded. During interviews cross check method was also adopted to investigate about human-black bear encounters. In addition to this, reports of some conflict cases that occurred in Kupwara district were investigated to understand circumstances leading to conflicts. Data so generated was suitably analysed and presented in this paper.

Observations and Discussion

Based on the records of human-black bear conflict and interview of the affected families, the level of conflict, place, time and seasonality of incidences are presented here.

Extent of human casualties : The area has had a long standing problem of man animal conflicts particularly by black bears and leopards. A total of 68 cases of human casualties by black bear were reported in Kupwara district during 2005-2011 (Table 1). Out of the total cases, male casualties were more (n=41, 60.3%) then the females (n=27, 39.7%). Among males, there were 41 injury cases; whereas among females, there were 4 human killings and 23 injury cases. Men were found to move extensively inside forest, for collection of fuelwood, non-timber forest products and in agriculture

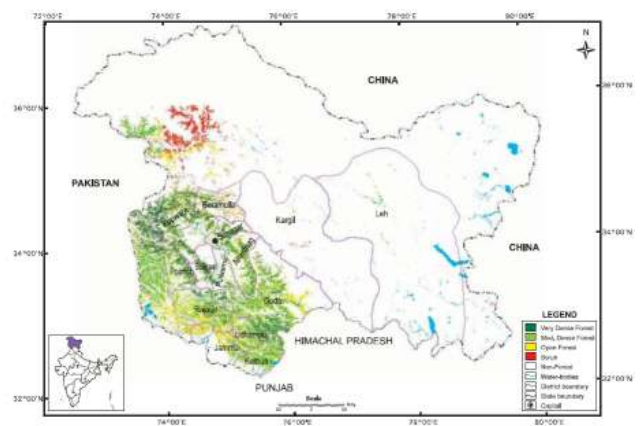


Fig. 1 : Forest cover map of Jammu and Kashmir (FSI, 2011)

fields for farming activity. So they are exposed more and mauled by black bear during attacks. Killings were reported only in females as they become motionless and more frightened during an encounter, thus are more prone to killings by black bear. Although this type of confrontation is not new to the places girdled by the forests but never before had number of attacks and consequent death crossed a limited count. In Uttarakhand, black bears accounted for 28.5% of 540 attacks by large carnivores between 1991-2001 of these 9% resulted in a human fatality (Chauhan, 2004).

Year-wise human casualties: During 2005-2011, most of the human casualties by black bear occurred in the human habitations and agricultural fields situated in the periphery of the forest areas and few occurred inside. Maximum human black bear encounters ($n=16$, 23.5%) were recorded during 2010-2011, followed by 15 (22.1%) cases in 2008-09 and 12 (17.6%) cases in 2007-08. All these human casualties showed an increasing trend during 2005 to 2011. Annual variation in the black bear attacks on people could be directly correlated with increasing human activities in forests, human encroachment, steadily decreasing forest cover as a result of legal or illegal logging operations, decline in natural prey base, and intolerant attitude of people towards black bear. The natural habitat of these beastly animals got disturbed and they have no option but to roam around in the human habitations leading to human-wildlife conflicts. Some conservationists opine that fencing of Line of Actual Control has disturbed the natural corridor of the wild animals across the dividing line, which has sent them into tizzy consequently they are heading to the human settlements bordering the forests.

Monthly variation in human casualties: There was marked monthly variation of human casualties by black bear in Kupwara district of Kashmir region during 2005-2011. Black bear attacks were recorded in all the seasons, but were high during summer and autumn seasons. The low number of the cases during winter and spring may be due to the fact that there was less human activity and

bears were either hibernating or were less active. Maximum casualties occurred in the month of August ($n=18$, 26.5%) followed by July ($n=9$, 13.2%), September and October each with eight cases ($n=8$, 11.8%). There were nil to six incidences in rest of months. The monthly occurrence of human casualties can be correlated with cropping pattern, fruit ripening and post-fruiting season when bears get large amounts of leftover fruits (e.g., apple, walnuts, plum, apricot, etc) in orchards, influx of villagers visiting to agricultural fields and forests for collection of fuelwood, illegal wood cutting and for collection of non timber forest produce.

Human wildlife conflicts occur when humans and wildlife come into close contact and share limited resources (Chauhan and Sethy, 2011). Bears wide ranging movement, their opportunistic nature and capacity for learning also increased the probability of encounters with humans (Schoen, 1990). Since the start of disturbances in Kashmir in 1989, the security forces are posted everywhere and the local people have easy access to them to get protection from the wild animals. Hence, most of the black bears were killed by the police or army. Attacks on humans do not appear to be as a result of predatory behaviour, but rather a result of the bear defending itself or its cubs from humans or trying to secure food (Akhtar and Chauhan, 2010).

Place and Time of human casualties: Highest number ($n=35$, 51.5%) of human casualties occurred in crop fields i.e., maize fields, apple orchard and kitchen gardens, 23 cases (33.8%) in villages including courtyard of houses and 10 cases (14.7%) in forest areas (Table 3). While out of 68 cases, 30 (44.1%) human casualties were reported to have occurred during crepuscular period (dawn and dusk), 29 cases (42.6%) reported during day time and 9 cases (13.2%) during night. It has been observed that during the crop season in the summer and autumn, bears are very active unlike leopards that are active round the year. Thus most of the casualties took place in crop fields at crepuscular periods during cropping season when black bears were raiding crops. As human activity is also high during these periods, when people are either going

Table 1 : Status of human casualties by black bear in Kupwara district of Kashmir region during 2005-2011 ($n=68$)

Period	Male		Female		Total
	*K	**I	*K	**I	
2005-06	—	6	1	1	8
2006-07	—	4	—	4	8
2007-08	—	8	—	4	12
2008-09	—	11	1	3	15
2009-10	—	4	1	4	9
2010-11	—	8	1	7	16
Total	—	41	4	23	68

* K: Killed, ** I: Injured

to for work or returning after work (Charoo *et al.* 2011).

Farming is the predominant sources of livelihood and people do not tolerate any losses to their crops or livestock from black bears. Maize and rice are the principal crops of Kupwara district of Kashmir region occupying 54.9% and 34.67 % of the gross cropped area. Fully grown maize fields become the seasonal ambush cover for the black bear (even the nursing bear females have been reported to stay along with the litter in such fields), thus the people living on the periphery of the forest areas cultivating maize and other attractive food crops of black bear were more vulnerable to attacks either during protection of their crops, during defecation at late hours or while working in the fields. Attacks occurred mostly when people try to chase the black bears followed by making huge mob and it panicked black bears or when it was a surprise close encounter.

Protective measures against black bear damage: Villagers used different protection measures against black bear damage. Most villagers used two or more types of preventive measures in combination to scare off bears. The protection measures adopted by the villagers to scare off bears included: drumming empty tin or metal containers, use of fire crackers, keeping guard dogs, barbed wire fencing, hedge fencing, etc. Drumming empty tin/metal containers is the most commonly used protection measure, as 71% respondents reported using this technique, burning fire at nights (49%), guard dog (47%), barbed wire fencing (31%), use of scare crows (25%) and hedge fencing (19%).

Attitude and perception of local people towards black bear: Although black bears don't have any hunting value for their meat, bile or fur in the Kashmir region, so bears by and large are safe in these forests (Akhtar and Chauhan, 2010). People were found to be highly intolerant towards black bears. People chased bears if they stray into the human habitations from forests generally, there is very little sympathy for black bears by the rural people. This can be illustrated by the fact that Kashmiri's have many proverbs about the bears, all founded on the supposed stupidity of the animal. One such is "Hapat Yaran" i.e., the friendship of a bear always

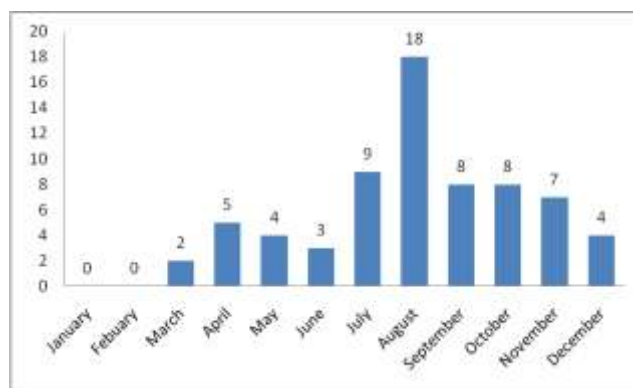


Fig. 2 : Monthly variation in human black bear conflicts in Kupwara district of Kashmir region during 2005–2011 (n=68).

leads a man into trouble through the blundering of his friend. Increasing human-wildlife conflict is representing a growing trend in India to resolve human wildlife conflict with cruelty.

Immediate attention is required to the growing menace of wild animals entering the populated areas and harming humans. We already have a depleting resources and if it is left to roam around in populated areas only to kill or injure people and be killed by them in reciprocity, then the time is no far away when we will have no rich biodiversity here in the forests of Kashmir valley.

Recommendations

Based on the records of the wildlife department, survey of affected areas and interview with the local people in Kupwara district of Kashmir region, the following general recommendations are made to minimize human-black bear conflict.

- There is an urgent need to collect the reliable information through monitoring using GIS on spatial and temporal pattern of black bear-human interactions to deal with the human-wildlife conflicts on a long-term basis. For instance, in Alaska, USA, a database containing a century (1901–2000) of bear-human conflicts has been maintained (Smith and Herrero, 2008).
- For mitigation of human-black bear conflict one of the ways is to minimize the ill effects of socio-economic constraints and socio-ecological

Table 2 : Location and Time of human-black bear conflicts in Kupwara district of Kashmir region, April 2005 – March 2011, based on interview of victim, relative or witness (n = 68).

Place of attack	Time of day			Total
	Night	Day	Crepuscular	
Crop Field	3	14	18	35
Village	5	11	7	23
Forest	1	4	5	10
Total	9	29	30	68

constraints. To minimize their ill effects on people, education and awareness programmes related to ecology and behaviour of black bear, genesis of black bear menace, possible mitigation strategies need to be conducted for the villagers in these areas.

- People need to change their intolerant attitude towards bears and play an active role in resolving conflicts. For this conservation education related efforts should be started in its habitat. Policy of introducing a village level management is important. Awareness programs for police, army and general public are needed to be launched.
- Strengthening of already suggested recommendations by Charoo *et al.* (2011) which includes creation of mobile rescue teams, training of wildlife staff in handling tranquilizing and transporting of wild bears, proper waste management in the villages around the forests. Other mitigation strategies include moving on regular paths, passing through open area in groups during dawn and dusk, avoiding potential dining sites, making fruit plantations and reducing maize

cultivation near the forest areas and creating of a transit facility for the rescued adult bears as well as abandoned black bear cubs.

- Also when women go in forest area for collection of fodder or fuel wood, they should always move in a group. They should prefer moving to forest area avoiding peak activity time of leopard and return early in the evening.
- The payment of compensation for menace is sometimes delayed due to completion of procedural requirement or untimely action. People need to be paid reasonable compensation by the Forest department in cases of attack and loss of crops. The payment cases need to be considered on priority and settled promptly by simplifying the verification procedure.
- Besides having a good forest cover, the Kupwara district of Kashmir region at present do not have even a single wildlife protected area likewise other districts of the Kashmir region. A protected area should be established within the area for the conservation of threatened species.

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कुपवाड़ा जिला, जम्मू व कश्मीर, भारत में एशियाई काले रीछ मानव संघर्षों का एक मूल्यांकन

सी.एस. सनवाल और रहील अनवर लोन

सारांश

सर्वेक्षण कुपवाड़ा जिले में मानव-एशियाई काले रीछ (*यूसस थिबेटेन्स*) संघर्ष की प्रकृति और सीमा का मूल्यांकन करने पर केन्द्रित था, जहाँ 2005 से 2011 के दौरान सूचित काले रीछ द्वारा मानव दुर्घटना के 68 मामले अभिलिखित किए गए। काले रीछ द्वारा महिलाओं (39.70%) की अपेक्षा पुरुष दुर्घटनाएं (60.29%) ज्यादा थी। अधिकतम मानव दुर्घटनाएं (23.53%) 2010 से 2011 के दौरान अभिलिखित की गईं, जो मानव-काले रीछ संघर्षों में वृद्धि रुझान को दर्शाती है। 2005 से 2011 के दौरान औसत आंकड़े अगस्त में उच्चतम (26.47%) के साथ आक्रमणों की अत्यधिक मासिक घटना दर्शाती है, इसके बाद जुलाई (13.23%) में रही। मानव पर रीछ आक्रमणों के अधिकतम मामले फसल क्षेत्रों (51.47%) में शाम के समय (44.11%) में हुए। खाली टिन अथवा धातु के पात्रों को बजाना सबसे आम पारम्परिक रूप से प्रयुक्त सुरक्षा उपाय है, क्योंकि 71% लोगों ने इस तकनीक के उपयोग को सूचित किया है। संस्तुतियों में अधिक संघर्ष वाले क्षेत्रों का अनुवीक्षण करना, काले रीछ के प्रति लोगों के असहिष्णु दृष्टिकोण में परिवर्तन के लिए लोक शिक्षा और जागरूकता करना आदि कुछ उपाय शामिल हैं, जो मानव-काले रीछ संघर्षों को कम करने में सहायता कर सकते हैं।

References

- Akhtar, N. and Chauhan, N.P.S. (2010). Intolerant attitude of people towards black bear (*Ursus thibetanus*) and mitigation strategies in Kashmir Valley, India. *Tiger Paper* 37(1): 7-12.
- Charoo, S.A., Sharma, L.K., and Sathyakumar, S., (2011). Asiatic Black Bear - Human interactions around Dachigam National Park, Kashmir, India. *Ursus*. 22(2):106-113.
- Chauhan, N.P.S. (2004). Black bear – Human conflicts in Garhwal and Kumaon Hills Uttaranchal, India. Poster presentation at the Fifteenth International Conference on Bear Research and Management. San Diego, California, USA, 8-13 February 2004 (Abstract).
- Chauhan, N.P.S. and Sethy, J. (2011). Human-Malayan conflicts in Manipur State, India. *Indian Forester*, 137(6): 722-731.
- <http://www.indiastat.com>, accessed 5 May 2012.

India State of Forest Report FSI (2011), Forest Survey of India, Dehradun.

Sathyakumar, S. and Choudhry, A. (2008). Distribution and Status of Asiatic black bear in India, 2005. *J. Bombay Nat. Hist. Soc.*, 104(3): 316-323.

Schoen, J. W. (1990). Forest management and bear conservation. Presented at the International Symposium-Wildlife Conservation, *Vth International Congress of Ecology*, Yokohama, Japan, August 25, 1990.

Smith, T.S. and Herrero, S. (2008). *A century of bear-human conflict in Alaska: Analysis and implications*. Alaska Science Center, Biological Science Office, Anchorage, Alaska, USA. http://www.absc.usgs.gov/research/brownbearsattacks/bear-human_conflicts.
