

# Status and Distribution of Bears in the State of Uttarakhand, India



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Funded by  
International Bear Association  
(IBA)

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## PREFACE

The fact that information on status and distribution of different species of bears is necessary for designing, implementation, and evaluation of conservation measures was the reason behind origin of this study. Since available information was deficient and scattered, an attempt was made to collect information from the records of the field offices of the forest department as well as by interacting with local communities.

I would like to acknowledge Mr Paramjeet Singh, IFS for his encouragement to undertake this study, contribution in planning the field visits and assistance in getting necessary approval to collect information from various field offices of the forest department. I would like to acknowledge Mr Srikant Chandola, Principal Chief Conservator of Forests (Wildlife) for granting necessary permissions and issuing instructions to the field offices to cooperate in collection of information.

I would like to acknowledge Dr. Parag Madhukar Dhakate, IFS for his interest in this study, consistence guidance and support. I thank Dr. N.P.S. Chauhan and Dr. Naim Akhtar for their inputs in designing the study. I would like to thank villagers and forest department officials across the State for their kind cooperation.

I would like to thank Mr Neeraj Mehar for his sincere efforts in collecting facts by undertaking an extensive journey across the State. I would like to thank Dr Poonam Semwal and Dr. Sabyasachi Dasgupta for their contribution in data collection, compilation and remarks to give final shape to this report. Finally, I would like to acknowledge the International Bear Association (IBA) for financial assistance under its Research and Conservation Grant.

Harendra Singh Bargali

## EXECUTIVE SUMMARY

Out of the total 8 species of bears, two species occur in Europe, three in North America, one in South America, and six in Asia. Four species namely the sloth bear, the Asiatic black bear, the Himalayan brown bear and the Malayan sun bear exist in India.

Like other parts of the globe, though bear occupy a special place in human culture but habitat degradation, diminished food resources, trade in body parts and increased conflict with humans are posing serious threat to the conservation of bears. In addition, bear body parts have been integral parts of traditional Chinese medicines since centuries.

To protect the species, all the four species of bears are listed under Schedule I of the Indian Wildlife (Protection) Act 1972 and Appendix I of CITES.

The State of Uttarakhand is situated in the northern part of India and can be divided into three physiographic zones namely, the Himalayas, the Shiwaliks and the Terai region. Three species of bears namely the sloth bear, the Asiatic black bear and the Himalayan brown bear are reported from the State.

The recorded forest area of the state is 34,662 km<sup>2</sup> which constitutes 64.79% of its geographical area. The forest cover of the state is 45.70% of the geographical area. About 19% of the geographical area is under permanent snow cover, glaciers and steep slopes where it is not possible to grow trees due to physical limitation.

Under the current project, information on status and distribution of bears was collected from 21 forest divisions situated in 13 districts of Uttarakhand. Pithoragarh, Tehri and Uttarkashi forest divisions support large populations of Asiatic black bear. Human-bear conflict is not reported from the Tehri and

Uttarkashi divisions but incidences of human mauling and cattle lifting have been reported from Pithoragarh Forest Division. Likewise Champawat, Nainital and Badrinath forest divisions also support significant populations of the Asiatic black bear.

Considering the long term conservation of bears in the state, it is important to manage and protect habitats that support sizeable populations of bears. Studies focusing on causal factors of human-bear conflict are essential to understand the circumstances and suggest site-specific measures to mitigate the conflict. It is also advisable that the field workers of the forest department, particularly the staff employed in divisions with overlapping bear populations, should be trained time to time to identify and differentiate between different species.

## 1. INTRODUCTION

There are eight species of bears in the world (Waits et al. 1999). These species are sun bear (*Ursus malayanus*), sloth bear (*Melursus ursinus*), Asiatic black bear (*Ursus thibetanus*), brown bear (*Ursus arctos*), American black bear (*Ursus americanus*), polar bear (*Ursus maritimus*), giant panda (*Ailuropoda melanoleuca*), and spectacled bear (*Tremarctos ornatus*). Bears have a wide global distribution and are found in most continents except Africa, Antarctica and Australia (Nowak and Paradiso 1983). Two species occur in Europe, three in North America, one in South America, and six in Asia. All over the world bear occupy a special place in human culture, play an important role in a number of indigenous societies and have been venerated as objects of worship for thousands of years by numerous human cultures around the world (Kemf et al. 1999).

At the same time survival of Bear population has been threatened over the years due to various reasons. Bear are poached for body parts which are used in traditional medicines since centuries (China over 5,000 years). Also, habitat alteration, due to increasing human population to meet the increasing demand of raw material, agricultural land and living space, and killing of bears for sports, medicinal products or other parts, protection of livestock and crops have led to the decline of the species (Mills and Servheen 1991, Kemf et al. 1999, Servheen, et al. 1999, Read 1982).

Four species of bears namely the sloth bear (*Melursus ursinus*), the Asiatic black bear (*Ursus thibetanus*), the Himalayan brown bear (*Ursus arctos*) and the Malayan Sun bear (*Ursus malayanus*) are found in India. Habitat degradation, diminished food resources, trade in body parts and increased conflict with humans (Laurie and Seidensticker 1977, Rajpurohit and Chauhan 1996, Garshelis et al. 1999, Bargali 2003, Bargali et al. 2005) are among the main reasons posing serious threat to the bear population in the country as well as

in their entire distribution range. Moreover, attacks on human and crop damage by the sloth bear have created fear and animosity among the public in many areas of its range (Bargali et al. 2004). All the four species of bears are listed under Schedule I of the Indian Wildlife (Protection) Act 1972, Appendix I of CITES.

## **2. UTTARAKHAND**

### **2.1 Introduction**

The State of Uttarakhand is situated in the northern part of India and lies between lat  $28^{\circ} 43'N$  and  $31^{\circ} 28'N$  and longitude  $77^{\circ}34'E$  and  $81^{\circ}03'E$  (Figure 2.1.1). The geographical area of the state is 53,483 km<sup>2</sup> which occupies 17.3% of total land area of India. The State can be divided into three physiographic zones namely, the Himalayas, the Shiwaliks and the Terrai region. Mainly the state has a temperate climate except in the plain areas where the climate is tropical. The temperature ranges from sub-zero to  $43^{\circ} C$  and average annual rainfall is 1,550mm (State of Forest Report 2005).

The total population of the state is 8.48 million (Census 2001) out of which rural population is 74.33% and urban 25.67%. Administratively state consists of 13 districts, 78 Tehsils, 95 blocks and 7227 Panchayats (Figure 2.1.2). The state shares its boundary with Himachal Pradesh in the north-west, Uttar Pradesh in the south, and international boundary with China in the north and Nepal in the east.

### **2.2 Forest Area**

The recorded forest area of the state is 34,662 km<sup>2</sup> which constitutes 64.79% of its geographical area. On the other hand, according to the legal status, forest area of 24,413.18 km<sup>2</sup> (45.65% of the total geographic area) is under the forest department. Reserve forests constitute 71.08%, Protected forests 28.51% and Unclassed forests 0.41 of the total forest area. Tropical Moist Deciduous,



Tropical Dry Deciduous, Sub Tropical Pine, Himalayan Moist Temperate, Himalayan Dry Temperate, Sub Alpine and Alpine Forests are the major forest types in the state (Anon, 2009, Table 2.2.1 & 2.2.2). About 19% of the geographical area is under permanent snow cover, glaciers and steep slopes where it is not possible to grow trees due to physical limitation. Land use pattern of the Uttarakhand is given in table 2.2.3.

Table 2.2.1 Distribution of Forest Area legally under forest department in Uttarakhand

S. No.	Type of Forest	Forest Area (Ha.)
1	Tropical Moist Deciduous Forests	327168.14
2	Riverine and Swampy Forests	70760.54
3	Tropical Dry Deciduous Forests	213505.11
4	Tropical Thorn Forests	23770.78
5	Sub Tropical Chir Pine Forests	377493.34
6	Himalayan Dry Temperate Forests	146983.97
7	Himalayan Moist Temperate Forests	317205.26
8	Sub Alpine Forests	63464.05
9	Moist Alpine Scrub Forests	35092.59
10	Dry Alpine Scrub	30788.8
11	Others	
	(i)Barren, snow covered, rocky and unusable land	480878.39
	(ii)Plantation and Unclassed	354207.51
Total		2441318.48

Figure 2.1.1 Map of Uttarakhand, the study area.

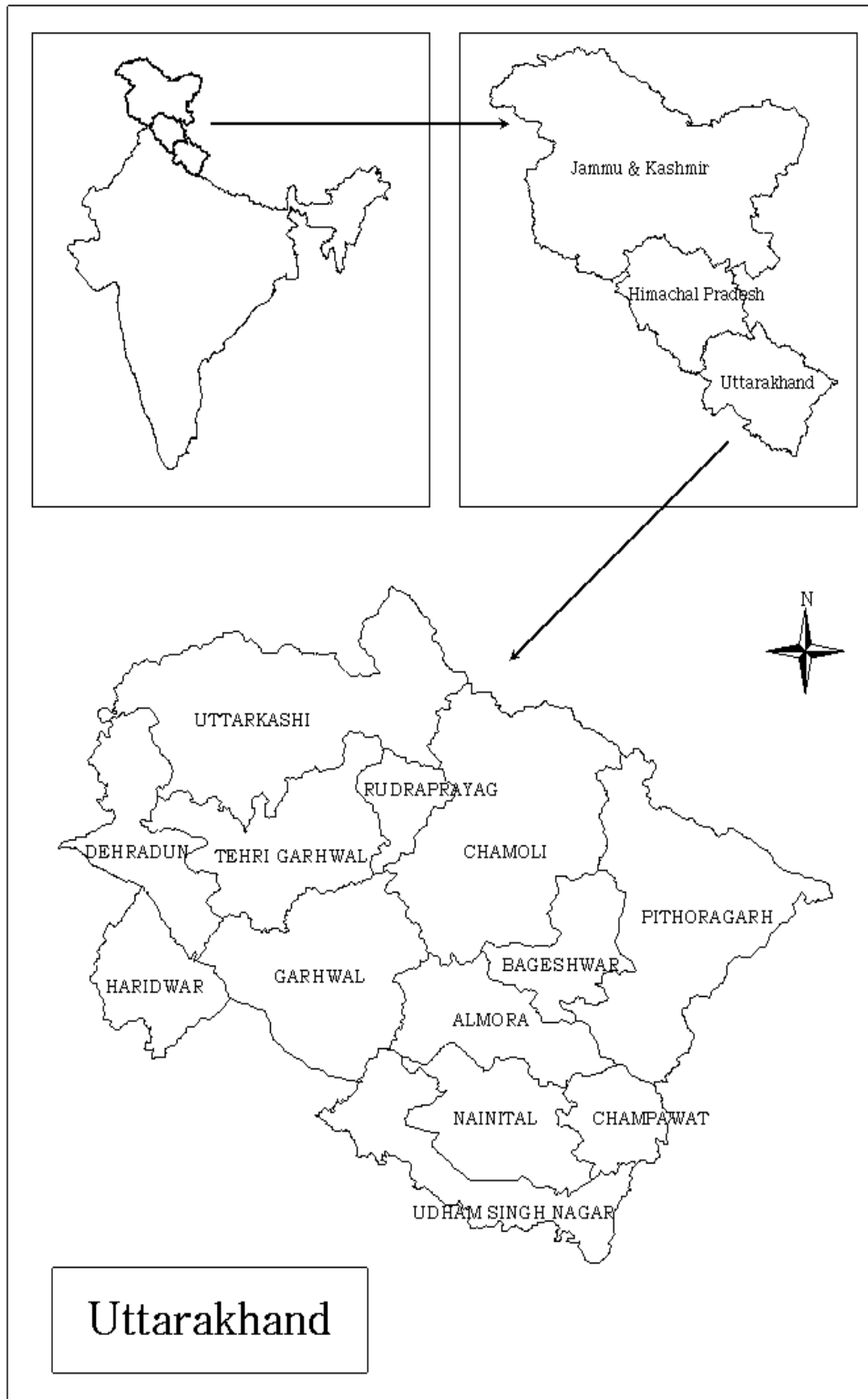


Table 2.2.2 Species-wise classification of Forest Areas under Forest Department

S. No.	Species	Area (Ha.)	Percentage
1	Sal	315112.91	12.91
2	Teak	20092.76	0.82
3	Sissoo	8837.26	0.36
4	Eucalyptus	27688.66	1.13
5	Catechu	5425.81	0.22
6	Chir Pine	399329.89	16.36
7	Deodar	19264.54	0.79
8	Blue Pine	17000.39	0.70
9	Fir and Spruce	95327.84	3.90
10	Cypress	8259.20	0.34
11	Oak	300072.20	12.29
12	Miscellaneous/Mixed	626321.65	25.66
13	Unproductive, barren etc	598585.37	24.52
Total		2441318.48	100.00

Table 2.2.3 Details of land use pattern in Uttarakhand

Land use	Area in '000 ha	Percentage
Total Geographic Area	5348	
Reporting area for land utilization	5689	100.00
Forests	3468	60.96
Not available for land cultivation	465	8.17
Permanent pastures and other grazing lands	229	4.03
Land under misc. tree crops and groves	252	4.43
Cultivable Wastelands	386	6.79
Fallow land other than current fallows	71	1.25
Current fallows	41	0.72
Net area sown	776	13.64

Source: Land use statistics, Ministry of Agriculture, GOI, 2005

### 2.3 Protected Areas

The State has 6 National Parks and an equal number of Wildlife Sanctuaries covering an area of 0.71 million ha, which constitutes 13.35% of its geographic area (Table 2.3.1).

Table 2.3.1 Details of Protected Areas in Uttarakhand

S. No.	Name	Area Km <sup>2</sup>
1	Corbett National Park	520.82
2	Nandadevi National Park	624.60
3	Valley of Flowers National Park	87.50
4	Rajaji National Park	820.42
5	Gangotri National Park	2390.02
6	Govind National Park	472.08
7	Mussoorie Wildlife Sanctuary	10.82
8	Kedarnath Wildlife Sanctuary	975.20
9	Govind Pashuvihar Wildlife Sanctuary	485.89
10	Askot Wildlife Sanctuary	599.93
11	Sonanadi Wildlife Sanctuary	301.18
12	Binsar Wildlife Sanctuary	47.07

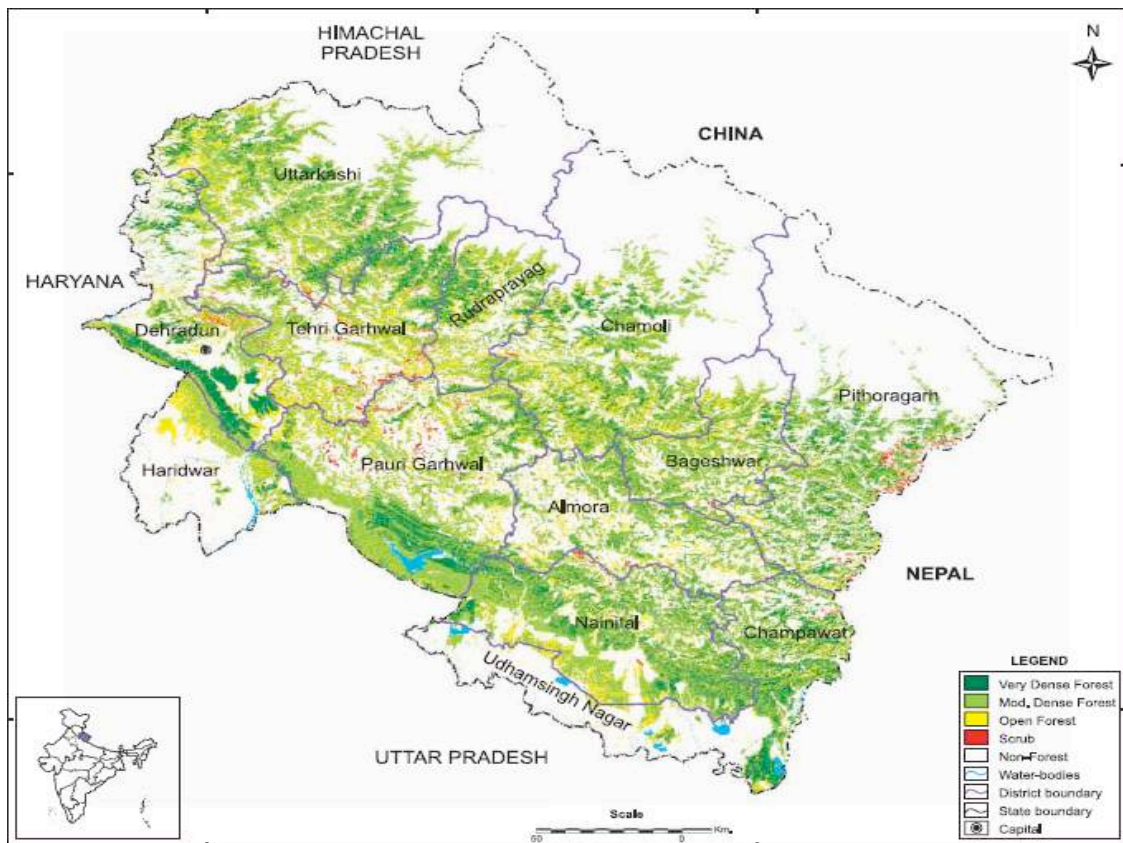
### 2.4 Forest Cover

The forest cover of the state is 45.70% of the geographic area. Very dense forest is 4,002 km<sup>2</sup>, moderately dense forest 14,396 km<sup>2</sup> and open forest 6,044 km<sup>2</sup> (Figure 2.4.1)

Figure 2.1.2 District map of Uttarakhand.



Figure 2.4.1 Forest cover map of Uttarakhand



### **3. DETAILS OF BEAR DISTRIBUTION**

Data on status and distribution of different species of bears was collected from 21 forest divisions in 13 districts of Uttarakhand (Table 3.1 and 3.2). The information was collected by visiting divisional and range offices of the state forest department. The secondary information collected on human-bear was verified through personal interviews and focus group discussion with villagers of the affected villages. Details of division-wise status and distribution of different species of bears in Uttarakhand is as follows.

#### **2.1 Bageshwar Forest Division:**

In Bageshwar Division, the black bear population is reported from 3 administrative ranges namely Kapkot, Garhket and Dharamghar. Only one incidence of mauling of a woman was recorded in year 2007 in Kapkot range. There has been no report of crop damage by black bear population in this division, whereas, only incidence of cattle lifting (buffalo) was reported from Kapkot range in February 2008.

#### **2.2 Almora Forest Division:**

In Almora Division, presence of the black bear is reported from Someshwar (Pinakh area), Ranikhet (Kaligarh and Jagdeo area), Jaurasi, Dwarahat and Mohan administrative ranges. During the last two years, two incidence of human mauling were reported in Dwarahat range. Involvement of bears in crop damage or cattle lifting is not reported from the division.

#### **2.3 Pithoragarh Forest Division:**

The Pithoragarh forest division supports good population of the Himalayan black bear. Out of the total 7 administrative ranges the black bear is reported to be distributed in 6 forest ranges. Significant population of the black bear exists in Pithoragarh, Askot, Dharchula and Munsyari administrative ranges, whereas, Didihat and Berinag ranges have comparatively less population.

During the last two years there were three incidences of human mauling by the black bear. Bears are not involved in crop damage but with cattle lifting. There were incidences when cattle such as horse, ox, cow and buffalo killed by the bear.

#### **2.4 Champawat Forest Division:**

In Chanpawat, out of the total seven administrative ranges the black bear is reported from 6 ranges. Champawat and Bheemrara ranges are reported to have good populations whereas Kali Kumaon, Devidhura, Boom and Dugadi ranges are reported to have only a few individuals. Bears are not involved in crop damage and cattle lifting, however, there are few incidences of human mauling in Dugai range only.

#### **2.5 Nainital Forest Division:**

In Nainital Forest Division 7 out of the total 8 administrative ranges are reported to have black bear population. The black bear is reported from Bhowali, Naina , Manora, Kosi, Gola North, Gola South and Badon administrative ranges. During the last two years there was only one incidence of human mauling in Gola North range. Crop damage by bear is not reported from the division.

#### **2.6 Haldwani Forest Division:**

In Haldwani forest division, though bears are reported to be distributed in its 5 forest ranges but number of individuals could not be ascertained. Problems such as human mauling, crop damage and cattle lifting have not been reported in this division.

#### **2.7 Terai-East Forest Division:**

According to the results of recent census conducted in 2008, out of the total 9 administrative ranges black bears are reported from 4 ranges namely Surai, Jolasal, Ransali, and Kishanpur ranges. During last two years, one incidence

of human mauling was recorded from Surai and Jolasal range each. There have been no incidences of crop damage or cattle lifting by the black bear.

### **2.8 Ramnagar Forest Division:**

In Ramnagar Forest Division, black bears are reported from 2 out of the total 5 forest ranges. The black bear populations have been reported from Dechauri and Kaladhungi ranges of the division. Occasional incidence of human-bear conflict is reported from the division.

### **2.9 Tehri Forest Division:**

New Tehri town has been established recently where the residents of old Tehri town were rehabilitated as the old town was submerged fully by Tehri Dam which is the largest and highest (260.5 meter) natural dam in the world. Dam affected old tehri town, 37 villages fully and 88 villages partially. Forest land of 4193.813 ha. were diverted(destroyed/ submerged) due to for the Tehri Dam Project and Koteshwar Project (in the downstream of Tehri Project). As per the census conducted by the forest division the division supports healthy population of the black bear in its Lamgaon, Balganga, Bhilgana, Tehri, and Pokhal administrative ranges. There is no report of human-bear conflict from the division.

### **2.10 Uttarkashi Forest Division:**

Both the black bear and brown bear are distributed in Uttarkashi forest division. Healthy population of the black bear is reported from Gangotri, Taknor, Badahat, dunda, Dharasoon and Mukham forest ranges of the division whereas few brown bears are reported from Gangotri range. During the last two years 7 cases of human mauling have been reported from Taknor, Badahat and Dharasoon ranges. Though there is no crop damage report but incidences of cattle lifting are reported from the division.



Gangotri National Park: Both the black and brown bear are reported from Gangotri national park. Problem of human-bear conflict does not exist in this division.

#### **2.11 Mussoorie Forest Division:**

In Mussoorie Forest Division, the black bear is reported from Raipur and Mussoorie administrative ranges of the division. During last two years there were 2 cases of human mauling. Though bears are distributed in Jhonpur range but crop damage has been reported due to migratory bears from other ranges with bear presence. However, problem of crop damage does not exist in ranges with bear population.

#### **2.12 Pauri Garhwal Forest Division**

Pauri Garhwal division is reported with high number of human mauling and killing incidences due to the black bear. 35 incidences of human mauling were reported during 2006-2008. Bears are distributed throughout the division. Apart from the problems from the black bear this division also suffers from high human casualties due to leopards.

#### **2.13 Badrinath Forest Division**

In Badrinath Forest Division, the black bear is reported from three administrative ranges namely Chamoli, Nand Prayag and West Pinder (Narayanbagad). Bears are not involved in cattle lifting and crop damage but there were 8 cases of human injuries during 2007 due to bear.

#### **2.14 Dehradun Forest Division**

In Dehradun Forest Division, out of the total nine ranges the sloth bear is reported from one administrative range. Human-bear conflict, in any form, is not reported from the division.

### 2.15 Lansdowne Forest Division

In Lansdowne Forest Division, the black is reported to be distributed in Laldhang, Kotdwar, Dugadda and Kotde forest range of the state. Human-bear conflict is not reported from the division.

### 2.16 Haridwar Forest Division

The black bear is reported from Shyampur range only. Forests in Haridwar division are important as these are contiguous with the forests of Rajaji National Park, serves as corridor and support good elephant population. One incidence of human mauling was recorded during last two years.

**Table 3.1 Details of forest area under various forest divisions.**

Circle/Division	Forest Area (Ha.)
Bageshwar	66343.82
Almora	61196.61
Pithoragarh	75136.70
Champawat	65980.12
Nainital	60114.57
Haldwani	59578.80
Tarai East	82429.92
Tarai West	34806.65
Tarai Central	40496.97
Ramnagar	48736.90
Tehri	143268.90
Uttarkashi	463382.98
Narendranagar	62107.60
Mussoorie	39082.93
Chakrata	40470.97
Garhwal	70166.30
Badrinath	134645.10
Dehradun	50482.78
Lansdown	43342.90
Haridwar	39074.11

#### **4. DISTRIBUTION OF BEARS IN PROTECTED AREAS**

Within its boundaries the Corbett Tiger Reserve (CTR) includes the Corbett National Park (CNP), Sonanadi Wildlife Sanctuary and buffer zone. Presence of bear reported from Kalagarh (CNP), Jhirna, Dhela, Bijrani, Sarapdulli, Dhikala and Kalagarh (Sonanadi WLS) administrative ranges. The CTR is reported with overlapping populations of the sloth bear and black bear as South Zone is reported with sloth bear population while Asiatic black bears are reported from North Zone. During 2005-2008, 4 incidences of human mauling were recorded; one incident each in Kalagarh (Sonamadi WLS) and Jhirna administrative range (CNP) while two incidences in Kalagarh (Corbett National Park) administrative range. The black bear is reported from the Binsar Wildlife Sactuary.

The Kedarnath Wildlife Division supports a healthy population (>125) of Asiatic black bear. Bears are reported from Dhampur, Lobha or Lowha, Gopeshwar, Nagnath and Ukhimath administrative ranges. 12 incidences of human mauling by black bears were recorded during the last two years. However, cattle lifting and crop damage is not reported. According to the census conducted during 2001 and 2003, 15 and 18 black bears have been reported from Nandadevi National Park in census operations conducted in 2001 and 2003 respectively. In Nandadevi National Park 5 incidences of human-bear conflict has been recorded from Joshimath during the last two years. Problems of crop damage and cattle lifting do not exist.

Both the black bear and sloth bear have been reported from the Rajaji National Park whereas black bear and brown bear are reported from the Govind Wildlife Sanctuary.

Table 3.2 Details of forest divisions, bear species and nature of human-bear conflict in Uttarakhand.

<b>S. No.</b>	<b>Forest Division</b>	<b>Bear Species</b>	<b>Human Mauling /Killing</b>	<b>Crop Damage</b>	<b>Cattle Lifting</b>
1	Bageshwar	Black bear	Yes	No	Yes
2	Almora	Black bear	Yes	No	No
3	Pithoragarh	Black bear	Yes	No	Yes
4	Champawat	Black bear	Yes	No	No
5	Nainital	Black bear	Yes	No	No
6	Haldwani	Black bear	No	No	No
7	Terai- East	Black bear	Yes	No	No
10	Ramnagar	Black bear	Yes	No	No
11	New Tehri	Black bear	No	No	No
12	Uttarkashi	Black & Brown	No	No	No
13	Narendranagar	Unknown	Unknown	Unknown	Unknown
14	Mussoorie	Black bear	No	Yes	No
15	Tons	Unknown	Unknown	Unknown	Unknown
17	Pauri Garhwal	Black bear	Yes	No	No
18	Badrinath	Black bear	Yes	No	No
19	Dehradun	Sloth Bear	No	No	No
20	Lansdowne	Black Bear	No	No	No
21	Haridwar	Sloth Bear	Yes	No	No

## 5 CONSERVATION RECOMMENDATIONS

5.1 It was found that good population of black bear (>200) exists in each Pithoragarh, Tehri and Uttarkashi forest division. Though the problem of human-bear conflict is not reported from the Tehri and Uttarkashi divisions but there are reports of human mauling and cattle lifting in Pithoragarh Forest Division. Pithoragarh District shares its boundaries with Tibet on the north,

Nepal on the east, district Almora on the south and districts Almora and Chamoli on the west. In a study conducted in Darma and Johaar valley of the district it was found that local Shoka tribe have been traditionally using black bear bile for curing a number of diseases (Negi and Payal, 2007). Therefore, considering threat to bear in the habitat lying near international boundaries where local tribes are known to use body parts in traditional medicines and in the areas where the cases of human mauling and cattle lifting are high, it is recommended to study trends in human-bear conflict in these vulnerable areas. Information collected from such a study will suggest ways to minimise conflict and devise measures to monitor the use of wildlife in traditional medicine by the local community.

5.2 Forest divisions like Champawat, Nainital and Badrinath also support large population (40-100) of the black bear. In these divisions though problem of cattle lifting does not exist but there are reports of occasional human-bear encounters. To manage the populations in these habitats and to ensure long term survival of bears it is recommended to study causal factors of conflict and manage these divisions as bear habitat.

5.3 Dehradun forest division support significant population of sloth bears. Though forest department is managing well but considering the pressure on its habitat due to anthropogenic pressures, developmental activities, and threat from poachers, conservation of sloth bear population needs special attention to protect the species and its habitat.

5.4 In areas such as the Corbett Tiger Reserve, Rajaji National Park, Ramnagar forest division, Haridwar forest division and Terai-West forest division where there is an overlap or likelihood of overlapping species of the sloth bear and black bear, there is need to train field staff to identify and differentiate between the different species.

5.5 Forest divisions or administrative ranges where population is reported to be limited in single digit only, conservation of remaining individuals requires intensive management practices. If managed properly it is possible that bear from adjoining division or ranges might descend to use the habitat thus the number might fluctuate and show good results.

5.6 To ensure long term conservation of Himalayan brown bear and Asiatic black bear there is a need to identify a few areas in their distribution range and manage it exclusively as future bear habitats.

## **6. LIMITATIONS**

Research team could not collect data from few forest divisions due to various limitations. It was intended to present the information on digitized GIS maps of the divisions but there is no such authentic division map available. It was not possible to depict information by plotting information on available district map because there are situations when a district contains more than one division. However, this information can be presented on divisional map once it is ready with the forest department.

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