

## 7.28 UTTARAKHAND

### 7.28.1 Introduction

The State of Uttarakhand is situated in the northern part of India and shares international boundary with China in the north and Nepal in the east. It has an area of 53,483 km<sup>2</sup> and lies between latitude 28°43' and 31°28' N and longitude 77°34' and 81°03' E.

Physiographically, the State can be divided into three zones namely, the Himalayas, the Shiwaliks and the Terai region. The State has a temperate climate except in the plain areas where the climate is tropical with temperatures ranging from sub-zero to 43°C. The average annual rainfall is 1,550 mm.

As per Census 2001, the total population of the State is 8.48 million of which the rural population is 74.33%. The population density is 159 persons per km<sup>2</sup>. The Scheduled Tribes constitute 3.0% of the population. The projected population of the State is 9.66 million (as projected by the Office of RGI for 2009), which constitutes 0.82% of the country's population. The livestock population of the State is 4.94 million (Livestock Census 2003).

Land use pattern of the State is given in Table 7.28.1.

Of the geographical area (53,483 km<sup>2</sup>), about 19% is under permanent snow cover, glaciers and steep slopes where tree growth is not possible due to climatic & physical limitations.

**Table 7.28.1: Land use pattern**

Land Use	Area in '000 ha	Percentage
Total geographical area	5,348	
Reporting area for land utilization	5,666	100.00
Forests	3,465	61.15
Not available for cultivation	467	8.24
Permanent pastures and other grazing lands	230	4.06
Land under misc. tree crops & groves	249	4.39
Culturable wasteland	384	6.78
Fallow lands other than current fallows	62	1.09
Current fallows	42	0.74
Net area sown	768	13.55

Source: Land Use Statistics, Ministry of Agriculture, GOI, 2006.

### 7.28.2 Recorded Forest Area

The recorded forest area of the State is 34,651 km<sup>2</sup>, which constitutes 64.79% of its geographical area. Reserved Forests constitutes, 71.10%, Protected Forests 28.52% and Unclassed Forests 0.38% of the total forest area.

### 7.28.3 Protected Areas

The State has 6 National Parks, 6 Wildlife Sanctuaries and 2 Conservation Reserves covering an area of 7,376 km<sup>2</sup>, which constitutes 13.79 % of its geographical area. The famous Corbett Tiger Reserve is located in the State covering an area of 0.13 million ha. Nanda Devi Biosphere Reserve, with an area of 0.59 million ha, is also located in this State.

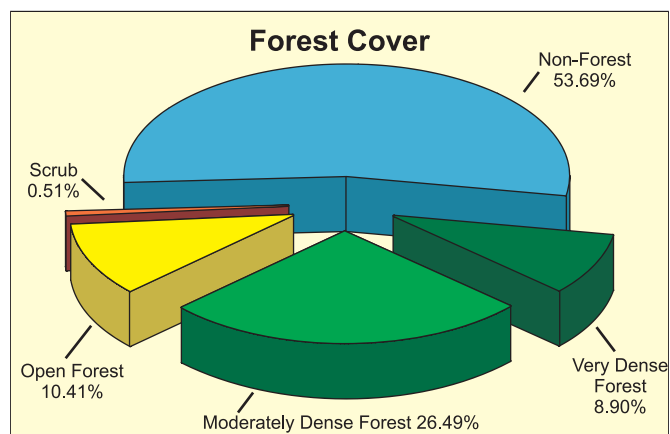
### 7.28.4 Joint Forest Management

JFM started in the State in 1992 when it was a part of UP. There are 10,107 JFM Committees managing about 0.86 million ha of forest area, which is about 25% of the forest area of the State. About 0.5 million families are involved in this programme, of which around 15,000 families belong to the Scheduled Tribes.

Source: MoEF, 2005.

### 7.28.5 Forest Cover

The forest cover in the State, based on interpretation of satellite data of Oct 2006 -Jan 2007, is



24,495 km<sup>2</sup>, which is 45.80% of the State's geographical area. In terms of forest canopy density classes, the State has 4,762 km<sup>2</sup> very dense forest, 14,165 km<sup>2</sup> moderately dense forest and 5,568 km<sup>2</sup> open forest. The distribution of forest cover of the State

is shown in Fig. 7.28.

Comparison of the current forest cover (satellite data of Oct 2006 - Jan 2007) with the previous assessment (satellite data of Oct - Dec 2004) shows a gain of 2 km<sup>2</sup> of forest cover.

The change matrix, given in Table 7.28.2, reveals that there has been a decrease of 5 km<sup>2</sup> in the moderately dense forest and an increase of 7 km<sup>2</sup> in open forest.

On the basis of ground truthing by the officials of FSI, the main reason for the increase in forest cover in the districts of Nainital and Udham Singh Nagar was successful plantation. The main reason for the decrease in the districts of Haridwar, Udham Singh Nagar and Nainital was the rotational felling of Eucalyptus and

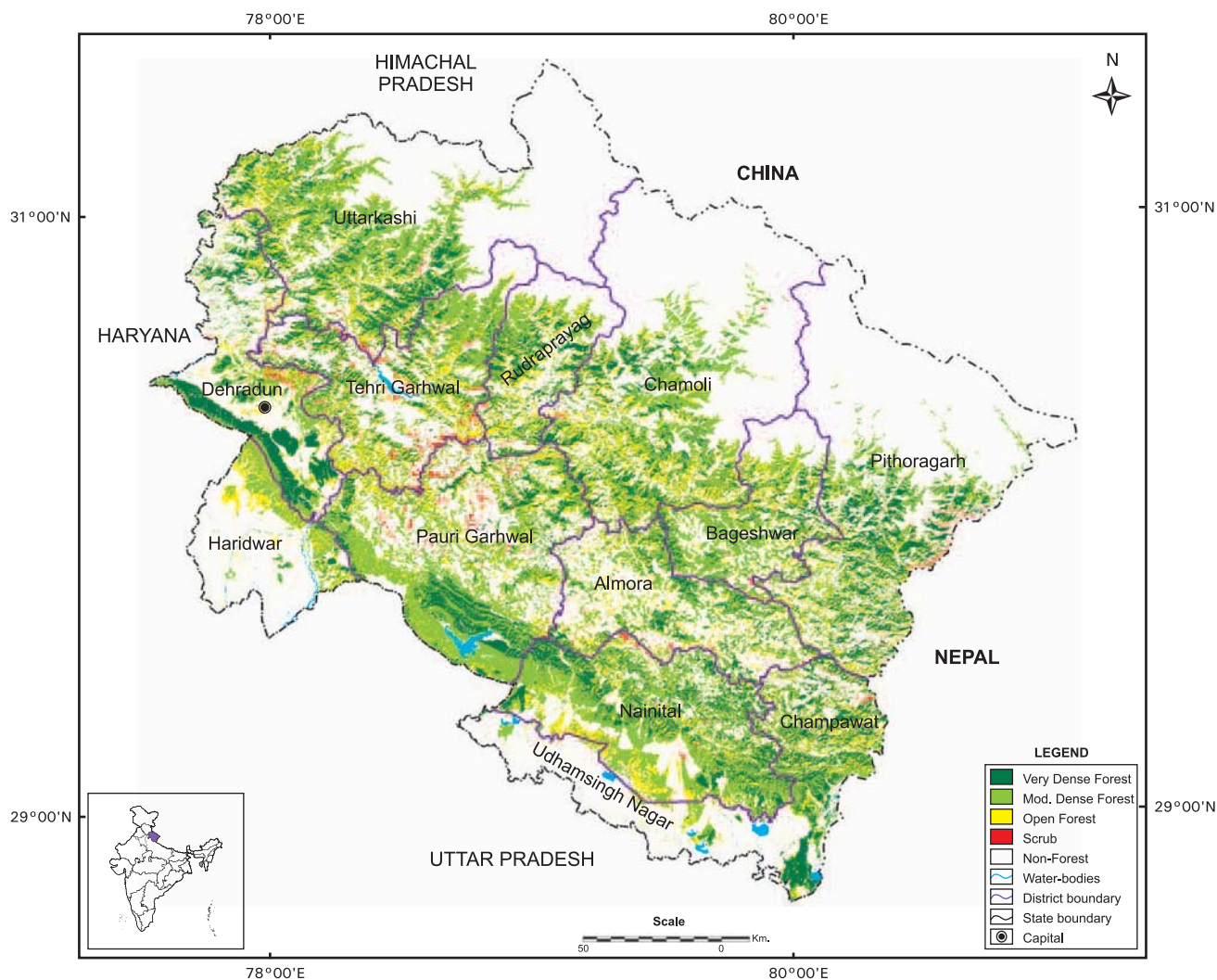


Fig. 7.28 : Forest cover map of Uttarakhand

## Forest and Tree Resources in States and Union Territories

poplar. In Tehri Garhwal district submergence of Tehri dam reservoir was the reason for decrease in forest cover.

District wise forest cover in different canopy density classes and scrub along with the changes compared to 2005 assessment is given in the Table 7.28.3.

**Table 7.28.2: Forest cover change matrix**

(area in km<sup>2</sup>)

2005 Assessment (Data of Oct - Dec 2004)	2007 (Data of Oct 2006 - Jan 2007)					Total of 2005
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	4,762	0	0	0	0	4,762
Moderately Dense Forest	0	14,164	1	0	5	14,170
Open Forest	0	0	5,554	0	7	5,561
Scrub	0	0	0	271	1	272
Non-Forest	0	1	13	0	28,704	28,718
<b>Total of 2007</b>	<b>4,762</b>	<b>14,165</b>	<b>5,568</b>	<b>271</b>	<b>28,717</b>	<b>53,483</b>
Net Change	0	-5	7	-1	-1	

**Table 7.28.3: District-wise forest cover in 2007**

Number of districts: 13

(area in km<sup>2</sup>)

District	Geographical area	Very dense forest	Mod. dense forest	Open forest	Total	% of G.A.	Change*	Scrub
Almora <sup>H</sup>	3,139	222	928	427	1,577	50.24	0	10
Bageshwar <sup>H</sup>	2,246	194	883	304	1,381	61.49	0	4
Chamoli <sup>H</sup>	8,030	427	1,586	682	2,695	33.56	0	6
Champawat <sup>H</sup>	1,766	336	571	274	1,181	66.87	0	8
Dehradun <sup>H</sup>	3,088	584	695	328	1,607	52.04	0	24
Pauri Garhwal <sup>H</sup>	5,329	523	2,094	672	3,289	61.72	0	59
Haridwar <sup>H</sup>	2,360	26	354	238	618	26.19	-1	0
Nainital <sup>H</sup>	4,251	601	1,919	573	3,093	72.76	5	13
Pithoragarh <sup>H</sup>	7,090	567	1,115	412	2,094	29.53	0	32
Rudraprayag <sup>H</sup>	1,984	246	581	298	1,125	56.70	0	5
Tehri Garhwal <sup>H</sup>	3,642	298	1,232	617	2,147	58.95	-2	89
Udhamsingh Nagar <sup>H</sup>	2,542	171	248	124	543	21.36	0	0
Uttarkashi <sup>H</sup>	8,016	567	1,959	619	3,145	39.23	0	21
<b>Total</b>	<b>53,483</b>	<b>4,762</b>	<b>14,165</b>	<b>5,568</b>	<b>24,495</b>	<b>45.80</b>	<b>2</b>	<b>271</b>

\* Change compared to 2005 assessment (revised).

### 7.28.6 Altitude Zone wise Forest Cover

Forest cover of the State in different altitude zones is given in Table 7.28.4.

**Table 7.28.4: Altitude zone wise forest cover**

(area in km<sup>2</sup>)

Altitude Zone	VDF	MDF	OF	Total
0-500m	522	1,774	784	3,080
500-1000m	958	2,169	850	3,977
1000-2000m	1,562	5,555	2,672	9,789
2000-3000m	1,578	3,267	1,003	5,848
>3000m	142	1,400	259	1,801
<b>Total</b>	<b>4,762</b>	<b>14,165</b>	<b>5,568</b>	<b>24,495</b>

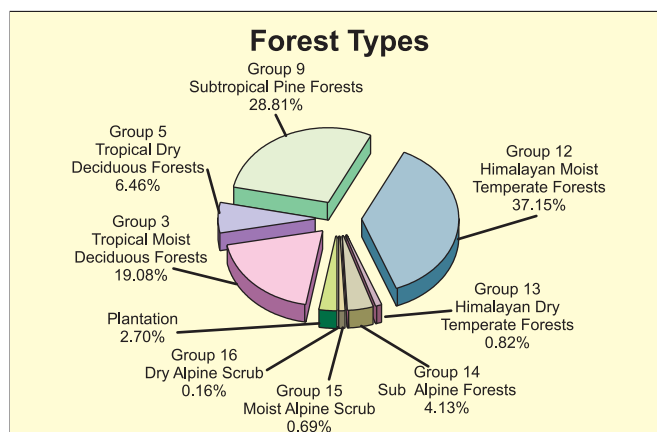
(based on SRTM Digital Elevation Model)

### 7.28.7 Forest Cover in different Forest Types

As per Champion & Seth Classification System (1968), the State has 37 forest types which belong to 8 forest type groups viz Tropical Moist Deciduous, Tropical Dry Deciduous, Subtropical Pine, Himalayan Moist Temperate, Himalayan Dry Temperate, Sub Alpine Forests, Moist Alpine Scrub and Dry Alpine Scrub. Distribution of forest cover in different forest type groups found in the State is given in the pie diagram.

### 7.28.8 Tree Cover

Tree cover of the State has been estimated using sample data of TOF inventory collected over a period of six years i.e. 2002-08. The estimated tree cover in the State is 665 km<sup>2</sup> which is 1.24% of the



geographical area of the State. Six districts (Almora, Bageswar, Chamoli, Haridwar, Nainital and Uttarkashi) of the State have been inventoried. The forest and tree cover of the State is presented in the Table 7.28.5.

**Table 7.28.5: Forest & tree cover**

(area in km<sup>2</sup>)

Category	Area	% of Geographical area
Tree Cover	665	1.24
Forest Cover	24,495	45.80
<b>Forest &amp; Tree Cover</b>	<b>25,160</b>	<b>47.04</b>