

9.11 JAMMU AND KASHMIR

9.11.1 Introduction

The hilly state of Jammu and Kashmir comprises of three regions, viz. Kashmir valley, Ladakh and Jammu. The state lies in the extreme north of the country and shares international boundaries with Pakistan, Afghanistan and China. The state has a geographical area of 2,22,236 km². It lies between 32°17' N - 37°05' N latitude and 72°31' E - 80°20' E longitude. The annual rainfall is 600 mm - 800 mm and the temperature ranges from subzero to 40°C.

The population of the state is 12.55 million (*Census 2011*) which constitutes 1.04% of the country's population. Of this, rural population is 72.79% and urban population 27.21%. The population density is 56 persons per km². The livestock population is 10.99 million (*Livestock Census 2007*).

Land use pattern of the state is given in Table 9.11.1.

Table 9.11.1: Land Use Pattern

Land Use	Area in '000 ha	Percentage
Total geographical area	22,224	
Reporting area for land utilization (o)	3,781	100.00
Forests	2,023	53.50
Not available for cultivation	585	15.47
Permanent pastures and other grazing lands	128	3.39
Land under misc. tree crops and groves	67	1.77
Culturable wasteland	150	3.97
Fallow lands other than current fallows	23	0.61
Current fallows	65	1.72
Net area sown	739	19.55

(o): Excludes area under the illegal occupation of China and Pakistan

Source: *Land Use Statistics, Ministry of Agriculture, GOI, 2008-09.*

9.11.2 Recorded Forest Area

The recorded forest area of the state is 20,230 km² which is 9.1% of the geographical area. Reserved Forests constitute 87.21%, Protected Forests 12.61% and Unclassed Forests 0.18%.

9.11.3 Protected Areas

Jammu and Kashmir has 4 National Parks, 15 Wildlife Sanctuaries and 34 Conservation Reserves, covering an area of 11,774.50 km². The Dachigam National Park is famous for Hangul. Wular Lake, situated in Baramulla district, covering an area of 8,900 ha, is one of the wetlands of international importance and has been designated as a Ramsar site.

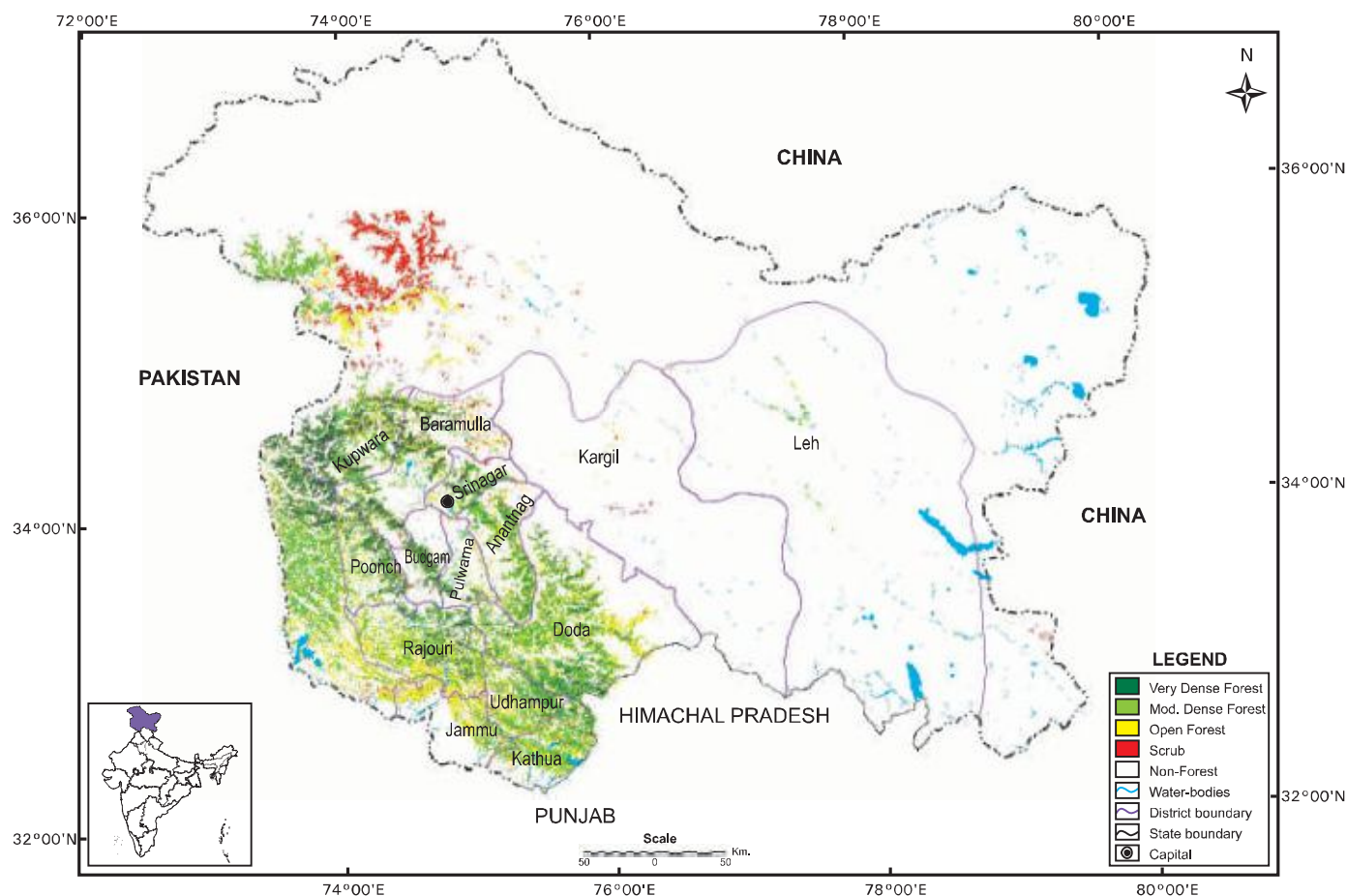
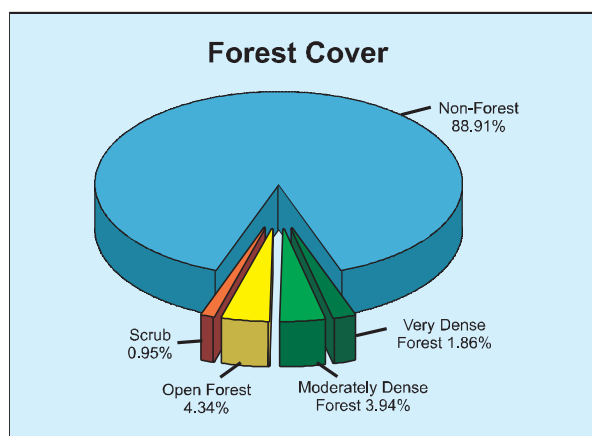


Fig 9.11 Forest cover map of Jammu & Kashmir

9.11.4 Forest Cover

The forest cover of the state, based on interpretation of satellite data of October-December 2008 is 22,539 km² which is 10.14% of the state's geographical area. In terms of forest canopy density classes, the state has 4,140 km² area under very dense forest, 8,760 km² area under moderately dense forest and 9,639 km² area under open forest. The forest cover of the state is shown in Fig. 9.11.



District-wise forest cover in different canopy density classes along with the changes

compared to 2009 Assessment and scrub are given in Table 9.11.2.

Table 9.11.2: District-wise Forest Cover (Area in km²)

District	Geographical Area	2011 Assessment				Percent of GA	Change*	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Anantnag ^H	3,984	196	664	578	1,438	36.09	0	23
Baramulla ^H	4,588	425	286	446	1,157	25.22	0	86
Budgam ^H	1,371	99	69	52	220	16.05	0	8
Doda ^H	11,691	619	1,689	1,659	3,967	33.93	0	5
Jammu ^H	3,097	0	210	672	882	28.48	0	43
Kargil ^H	14,037	0	3	21	24	0.17	0	19
Kathua ^H	2,651	112	673	614	1,399	52.77	1	12
Kupwara ^H	2,379	472	366	322	1,160	48.76	0	3
Leh ^H	45,110	0	48	57	105	0.23	0	6
Outside LOC ^H	120,848	1,326	2,471	2,686	6,483	5.36	1	1,810
Poonch ^H	1,674	187	300	242	729	43.55	0	9
Pulwama ^H	1,398	110	106	78	294	21.03	0	10
Rajouri ^H	2,630	49	439	752	1,240	47.15	0	8
Srinagar ^H	2,228	196	307	249	752	33.75	0	16
Udhampur ^H	4,550	349	1,129	1,211	2,689	59.10	0	47
Grand Total	222,236	4,140	8,760	9,639	22,539	10.14	2	2,105

* Change figures are based on comparison of 2011 assessment with that of 2009 after incorporating interpretational changes.

9.11.5 Forest Cover Change

Although there is a positive change of 2 km² in the 2011 Assessment, there is a net decrease of 147 km² in the forest cover from the reported area in ISFR 2009. This has resulted due to

interpretational changes (on negative side) noticed on account of refinement of methodology as also the availability of satellite data of appropriate season with improved quality as compared to previous years.

Table 9.11.3: Forest Cover Change Matrix (Area in km²)

2009 Assessment	2011 Assessment					Total 2009
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	4,140	0	0	0	0	4,140
Moderately Dense Forest	0	8,760	0	0	0	8,760
Open Forest	0	0	9,637	0	0	9,637
Scrub	0	0	0	2,101	0	2,101
Non-Forest			2	4	197,592	197,598
Total 2011	4,140	8,760	9,639	2,105	197,592	222,236
Net Change	0	0	2	4	-6	

9.11.6 Altitude Zone-wise Forest Cover

Forest cover of the state in different altitude zones is given in Table 9.11.4.

Table 9.11.4: Altitude Zone-wise Forest Cover (Area in km²)

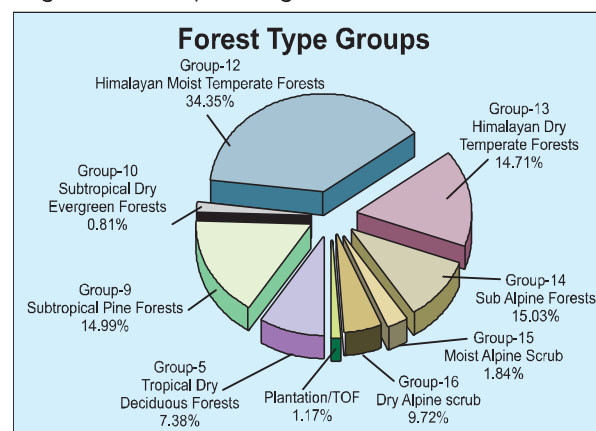
Altitude Zone	VDF	MDF	OF	Total
0-500m	1	179	706	886
500-1000m	48	1,310	2,268	3,626
1000-2000m	658	2,383	2,245	5,286
2000-3000m	2,722	3,446	2,588	8,756
>3000m	711	1,442	1,832	3,985
Total	4,140	8,760	9,639	22,539

(Based on SRTM, Digital Elevation Model)

9.11.7 Forest Cover in Different Forest Types

Forest type mapping using satellite data has been undertaken by Forest Survey of India with reference to Champion & Seth Classification. As per this assessment, the state has 38 forest types which belong to eight forest type groups, viz. Tropical Dry Deciduous, Subtropical Pine, Subtropical Dry Evergreen, Himalayan Moist Temperate, Himalayan Dry Temperate, Sub Alpine Forests, Moist Alpine Scrub and Dry Alpine Scrub. Percentage-wise distribution of forest

cover of the state in various forest type groups is given in the pie diagram.



9.11.8 Tree Cover

Tree cover of the state has been estimated using TOF inventory data collected over a period of six years, i.e. 2004-10. The estimated

tree cover in the state is 6,550 km² which is 2.95% of the geographical area of the state. The forest and tree cover of the state is presented in Table 9.11.5.

Table 9.11.5: Forest and Tree Cover (Area in km²)

Category	Area	% of Geographical Area
Tree Cover	6,550	2.95
Forest Cover	22,539	10.14
Forest & Tree Cover	29,089	13.09

9.11.9 Growing Stock

The growing stock in the recorded forest area has been estimated on the basis of current forest cover map, forest type map and forest

inventory data. For trees outside forests (TOF), the same has been estimated using TOF inventory data. It is presented in the Table 9.11.6.

Table 9.11.6: Growing Stock (Million cum)

Forest	TOF	Total
227.388	147.745*	375.133

* The growing stock in TOF is high because all trees and tree patches within POK has been taken as TOF.