

8.22 PUNJAB

8.22.1 Introduction

Punjab, situated in the northern part of the country, has a geographic area of 5.04 million ha. It lies between lat 29°33' and 32°32' N and long 73°53' and 76°56' E. The State can be divided into three physiographic regions namely, Mountainous Himalayas, Sub-Mountainous Himalayas and Eastern and Western Alluvial Plains. Punjab shares its boundaries with Jammu & Kashmir in the north, Himachal Pradesh in the north-east and Haryana and Rajasthan to its south. The State also shares 300 km long international border with Pakistan on the western side. It is an intensively cultivated State having more than 84% area under agriculture.

Punjab is rich in water resources and is traversed by four rivers. Satluj and Beas are the two major rivers in addition to Ravi and Ghaggar. The State enjoys a typical sub tropical climate with hot summers and cold winters. The minimum temperature in winter falls to 0°C and the maximum in summer touches 47°C. The average annual rainfall varies from 480 mm in plains to 960 mm in the hilly region.

The total population of the State is 24.29 million (*Census 2001*), comprising 66.10% rural and 33.90% urban. The population density is 484 persons km². The livestock population of the State is 8.61 million (*Livestock Census 2003*), which has decreased by nearly 15% since the census of 1992. Land use pattern of the State is given in Table 8.22a.

Table 8.22a: Land use pattern

Land Use	Area in '000 ha	Percentage
Total geographical area	5,036	
Reporting area for land utilization	5,033	100.00
Forests	305	6.06
Not available for cultivation	381	7.57
Permanent pastures and other grazing lands	7	0.14
Land under misc. tree crops & groves	10	0.20
Culturable wasteland	25	0.50
Fallow lands other than current fallows	4	0.08
Current Fallows	38	0.76
Net area sown	4,264	84.72
Relates to the year 1998-99		

Source: *Land Use Statistics, Ministry of Agriculture, GOI, 2005.*

8.22.2 Forest Resources

Though Punjab is deficient in natural forests, it produces a significant quantity of timber from outside forest areas. The recorded forest area of Punjab is 3,084 km², which constitutes 6.12% of the geographic area. By legal status, Reserved Forests constitute 1.43%, Protected Forests 36.87% and the Unclassed Forests 61.70%.

Major forest types occurring in the State are Tropical Dry Deciduous, Sub Tropical Dry Evergreen and Tropical Thorn forests. About 55% of forest area is under the ownership of Panchayats, Communities and Individuals in the Shiwalik Hills, which is managed by the Forest Department under Punjab Land Preservation Act, 1900.

8.22.3 Protected Areas

Punjab has a total of 10 Wildlife Sanctuaries spread over an area of 31,673 ha, constituting 0.63% of the geographic area. The natural and man-made wetlands constitute about 0.31% of the State's area. The State has three internationally recognized wetlands at Harike, Kanjli, and Ropar which have been declared as Ramsar Sites.

8.22.4 Joint Forest Management

Joint Forest Management in the State began in 1993. There are 1,224 JFM Committees managing about 0.18 million ha of forest area as on March 2005, which is about

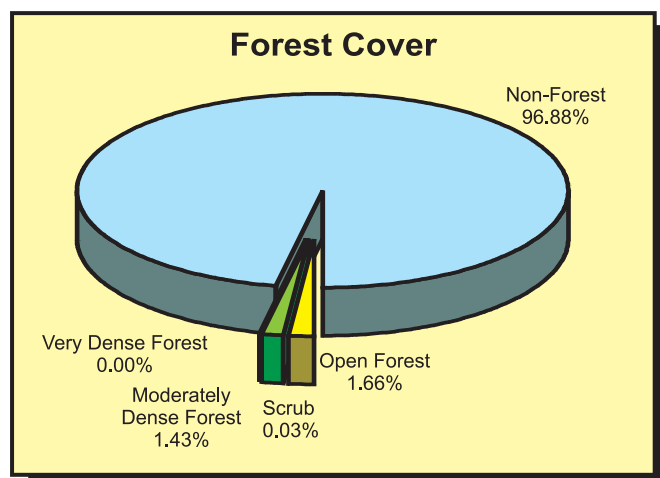
58% of the forest area of the State. More than 91,000 families are involved in this programme.

Source: *Proceedings of the National Workshop on JFM, MoEF, 2005.*

8.22.5 Forest Cover

The forest cover of the State, based on satellite data of October-November, 2004 is 1,558 km², which constitutes 3.09 % of the geographic area. Moderately dense forest is 723 km², and open forest, 835 km². The forest cover of the State is shown in Fig. 8.22.

An increase of 13 km² of forest cover has been assessed in the present assessment as compared to the previous assessment (based on satellite data of October-December 2002).



The change matrix, given in Table 8.22b reveals that there has been no change in very dense forest, an increase of 14 km² in moderately dense forest and a decrease of 1 km² in open forest.

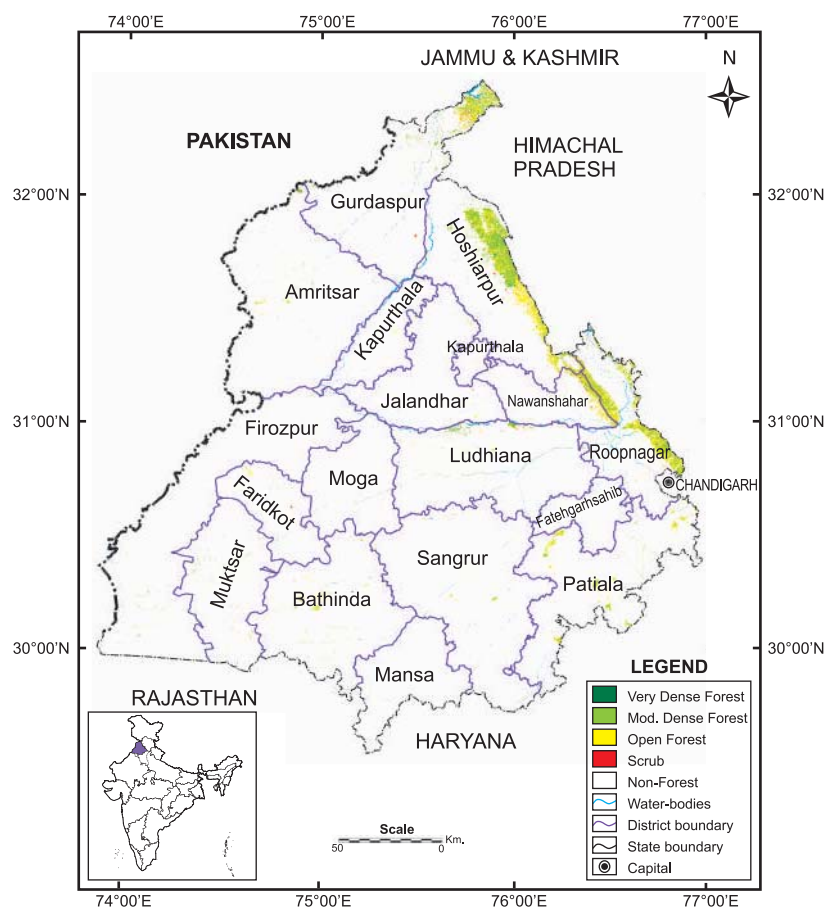


Fig. 8.22 : Forest Cover Map of Punjab

There has been an improvement in forest cover mainly due to poplar plantations in private lands and plantations of khair, kikar and shisham in other lands in the districts of Bhatinda, Patiala and Ludhiana as observed by FSI officials during field verification and corroborated by the State Forest Department. The losses in the districts are mainly due to fellings of private

plantations.

The district wise details of very dense, moderately dense, open forests and scrub, along with the changes compared to 2003 assessment, have been provided in Table 8.22c.

Table 8.22b: Forest cover change matrix

(area in km²)

2003 Assessment(Data of Oct.-Dec.2002)	2005 Assessment (Data of Oct.-Nov. 2004)					Total 2003
	VDF	MDF	OF	Scrub	NF	
Very Dense Forest	0	0	0	0	0	0
Moderately Dense Forest	0	709	0	0	0	709
Open Forest	0	2	833	0	1	836
Scrub	0	0	0	15	0	15
Non Forest	0	12	2	0	48,788	48,802
Total 2005	0	723	835	15	48,789	50,362
Net Change	0	14	-1	0	-13	

Table 8.22c: District-wise forest cover

Number of Districts: 17

(area in km²)

District	Geographic area	2005 Assessment				Percent of G.A.	Change	Scrub
		Very dense forest	Mod. dense forest	Open forest	Total			
Amritsar	5,088	0	16	12	28	0.55	1	0
Bathinda	3,353	0	11	20	31	0.92	4	1
Faridkot	1,458	0	3	5	8	0.55	0	1
Fatehgarh Sahib	1,180	0	0	0	0	0.00	0	0
Firozpur	5,874	0	9	5	14	0.24	-1	0
Gurdaspur	3,551	0	98	94	192	5.41	-2	8
Hoshiarpur	3,386	0	322	311	633	18.69	-1	2
Jalandhar	2,624	0	2	5	7	0.27	1	0
Kapurthala	1,633	0	1	3	4	0.24	0	0
Ludhiana	3,578	0	27	18	45	1.26	9	0
Mansa	2,198	0	0	1	1	0.05	0	0
Moga	1,689	0	1	4	5	0.30	0	0
Muktsar	2,593	0	13	4	17	0.66	0	0
Nawanshahar	1,282	0	30	66	96	7.49	1	3
Patiala	3,654	0	26	61	87	2.38	3	0
Roopnagar	2,113	0	159	212	371	17.56	0	0
Sangrur	5,108	0	5	14	19	0.37	-2	0
Total	50,362	0	723	835	1,558	3.09	13	15

8.22.6 Tree Cover

Tree cover of Punjab has been estimated following a sampling based approach. A separate exercise was carried out where high resolution satellite data (5.8m) has been used for identification of tree patches for field inventory.

Field inventory has been carried out on 340 sample plots spread over two districts of the State between 2002-06 and the estimated tree cover in the State is 1,823 km².

The forest and tree cover of the State is presented in the Table 8.22d.

Table 8.22d: Forest & tree cover

(area in km²)

Category	Area	% of Geographical Area
Tree Cover	1,823	3.62
Forest Cover	1,558	3.09
Forest & Tree Cover	3,381	6.71