

Forest Cover in Tiger Reserves of India: Status and Changes

This was the second study taken up by the FSI in 2004 at the behest of the Project Tiger Directorate, Government of India, to assess the current status of forest cover in existing Tiger Reserves (TRs) and also to detect changes during the previous five years. Many reasons necessitated the study. Firstly, there has been an increase in the total number of Tiger Reserves in the country which now stands at 28. Secondly, more stringent amendments got incorporated in the Wildlife (Protection) Act, 1972 in 1991 whose impact on Tiger habitat improvement called for a study. Earlier, FSI undertook a study in 1993 to assess the changes in the vegetation cover between 1983 and 1989 of the then existing 18 TRs. Both in terms of management techniques as well as in remote sensing techniques considerable advances have been made since then.

Objectives:

1. To prepare a comprehensive report on the status of forest cover in 28 Tiger Reserves of India using the technique of digital interpretation of satellite data.
2. To generate the maps showing the status of forest cover for each Tiger Reserve for the period 1997 and 2002 and change of forest cover during the period 1997-2002. In these maps the minimum area of delineation would be one hectare

Study Area and the Period of Assessment:

The peripheral area of the 10 km radial distance from the periphery of Tiger Reserve boundary (referred to as 'Outer Surround') was also studied in addition to the total area inside the 28 TRs. In addition to 1997 & 2002 the states of vegetation cover was also assessed and mapped for the year 2000 with the help of digital satellite data acquired from National Remote Sensing Agency (NRSA), Hyderabad.

Methodology:

The methodology for the assessment of forest cover involved digital image processing (DIP) followed by intensive field verification. The administrative maps of all TRs were procured from the respective State Forest Departments. These hard copy maps were scanned, geo-referenced with Survey of India toposheets and were digitized in the vector format and additional boundary of the Outer Surround was also created. The satellite data specifications were as under:

Bandhavgarh	1,162	860	860	861	0	1	1
Bandipur - Nagarhole	1,509	1,380	1,379	1,379	-1	0	-1
Bhadra	492	437	437	437	0	0	0
Bori - Satpura	1,502	1,279	1,279	1,279	0	0	0
Buxa	761	643	633	621	-10	-12	-22
Corbett	1,318	1,196	1,197	1,197	1	0	1
Dampa	500	485	479	478	-6	-1	-7
Dudhwa - Katarniaghat	1,284	1,031	1,030	1,030	-1	0	-1
Indravati	2,799	2,289	2,288	2,278	-1	-10	-11
Kalakad - Mundanthurai	895	724	724	724	0	0	0
Kanha	1,945	1,297	1,294	1,293	-3	-1	-4
Manas	2,840	1,566	1,559	1,555	-7	-4	-11
Melghat	1,677	1,485	1,485	1,485	0	0	0
Nagarjunasagar	3,568	2,621	2,622	2,628	1	6	7
Namdapha	1,985	1,855	1,858	1,858	3	0	3
Nameri	344	214	178	169	-36	-9	-45
Pakhui	862	846	846	844	0	-2	-2
Palamu	1,026	893	891	891	-2	0	-2
Panna	542	482	482	482	0	0	0
Pench (MP)	758	593	593	593	0	0	0
Pench (Maharashtra)	257	231	231	231	0	0	0
Periyar	777	650	650	650	0	0	0
Ranthambore	1,394	740	740	740	0	0	0
Sariska	881	674	674	674	0	0	0
Simlipal	2,750	2,658	2,658	2,658	0	0	0
Sundarbans	2,585	1,540	1,538	1,538	-2	0	-2
Tadoba - Andheri	620	584	584	584	0	0	0
Valmiki	840	734	736	736	2	0	2
Total	37,873	29,987	29,925	29,893	-62	-32	-94

Table 21: Forest cover and Changes therein in Outer Surround of Tiger Reserves (Area in km²)

Tiger Reserve	Geog. Area	Forest Cover in Outer Surround					
		1997	2000	2002	Change 1997-2000	Change 2000-2002	Change 1997-2002
Bandhavgarh	2,325	662	661	661	-1	0	-1
Bandipur-Nagarhole	3,807	1,767	1,763	1,763	-4	0	-4
Bhadra	1,817	1,167	1,168	1,167	1	-1	0
Bori-Satpura	2,398	1,346	1,346	1,346	0	0	0
Buxa	1,376	447	438	438	-9	0	-9
Corbett	2,107	1,049	1,048	1,048	-1	0	-1
Dampa	810	772	754	754	-18	0	-18
Dudhwa-	2,819	477	476	476	-1	0	-1

Katarniaghat							
Indravati	2,570	1,906	1,904	1,904	-2	0	-2
Kalakad- Mundanthurai	2,138	857	857	857	0	0	0
Kanha	2,259	1,216	1,216	1,216	0	0	0
Manas	3,236	453	452	452	-1	0	-1
Melghat	2,499	1,384	1,384	1,384	0	0	0
Nagarjunasagar	4,330	1,125	1,123	1,123	-2	0	-2
Namdapha	1,421	1,214	1,223	1,223	9	0	9
Nameri	1,265	599	583	583	-16	0	-16
Pakhui	1,828	1,685	1,682	1,682	-3	0	-3
Palamu	2,733	1,481	1,462	1,462	-19	0	-19
Panna	1,692	631	631	631	0	0	0
Pench (MP)	2,028	807	807	807	0	0	0
Pench(Maharashtra)	764	463	462	462	-1	0	-1
Periyar	1,961	1,499	1,499	1,499	0	0	0
Ranthambore	3,856	369	364	364	-5	0	-5
Sariska	2,491	464	463	463	-1	0	-1
Simlipal	2,595	678	678	678	0	0	0
Sundarbans	1,803	230	233	233	3	0	3
Tadoba - Andheri	1,588	709	708	708	-1	0	-1
Valmiki	1,415	106	104	104	-2	0	-2
Total	61,931	25,563	25,489	25,439	-74	-50	-124