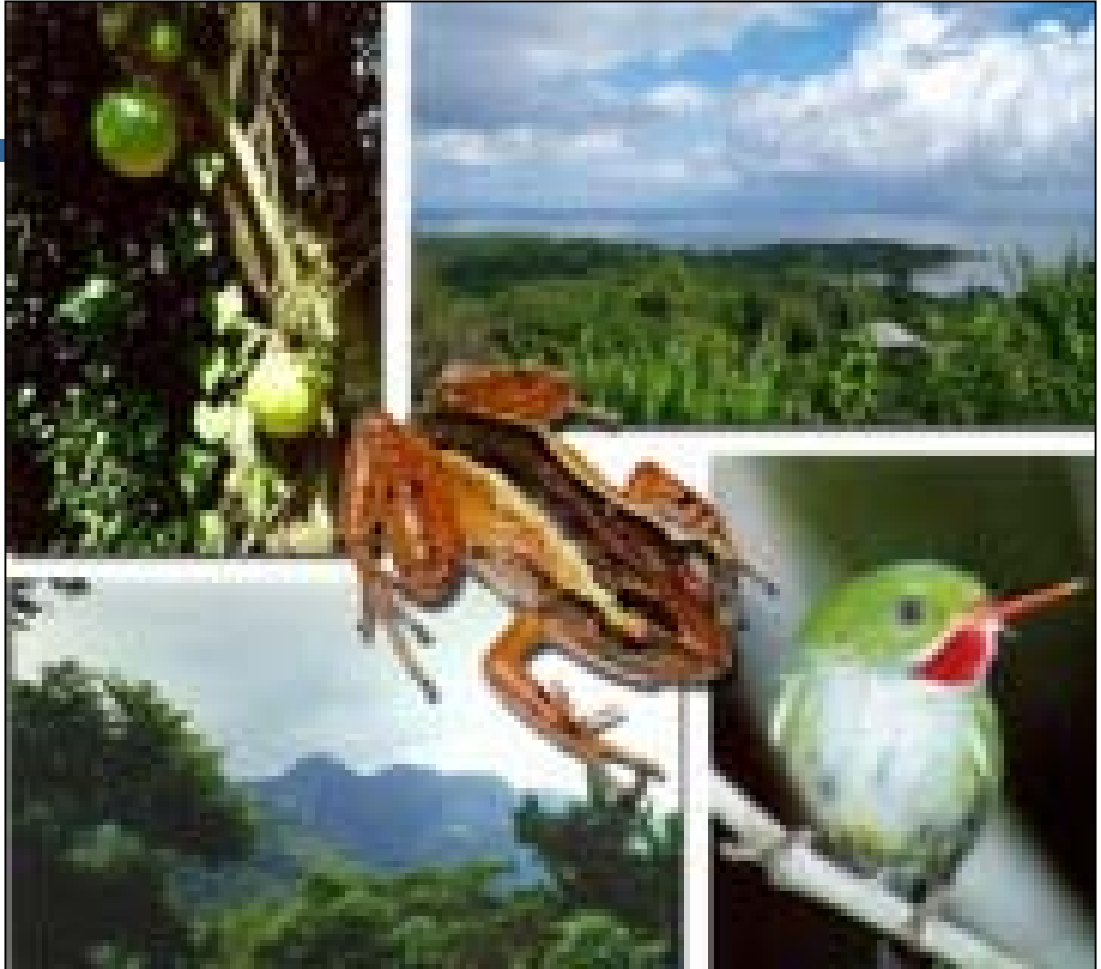


# Chapter Three



## Biodiversity

## CHAPTER THREE

### BIODIVERSITY

3.1 The term 'biodiversity' encompasses the variety of life on Earth. It is defined as the variability among living organisms and the ecological complexes of which they are part, including diversity within and between species and ecosystems. Biodiversity manifests at species genetic and ecosystem levels. Biodiversity has direct consumptive value in food, agriculture, medicine, industry, etc. It also has aesthetic and recreational value.

3.2 India is one of the 12 mega-biodiversity countries of the world. From about 70% of the total geographical area surveyed so far, 46,000 plant species and 81,000 animal species representing about 7% of the world's flora and 6.5% of the world's fauna, respectively, have been described. Out of the total twelve biodiversity hot spots in the world, India has two, one is the north east region and other the western ghats.

3.3 Though more than one-fifth of India's geographic area is recorded as forest area, it is not known with certainty how much forest area actually bears forest cover. The National Forest Policies (1952 and 1988) aim at having one third of country's land area under forest and tree cover. As per the latest State of Forest Report 2003, the forest cover in the country is 678,333 kmsq. and constitutes 20.64 percent of its geographic area. There is an increase of 2,795 kmsq or 0.41 percent in forest cover in year 2003 as compared to assessment made in 2001. The total tree cover of the country has been estimated as 99,896 km sq. or about 3.04 percent of the country's geographic area, which is 18,424 kmsq more than what was assessed in 2001.

3.4 Plant biodiversity as a national and global resource is extremely valuable but is

poorly understood, inadequately documented and often wasted. The preservation of biodiversity is both a matter of investment and insurance to a) sustain and improve agricultural, forestry and fisheries production, b) act as a buffer against harmful environmental changes, c) provide raw materials for scientific and industrial innovations, and d) safe guard transferring biological richness to future generations.

3.5 Biodiversity the world over is in peril because the habitats are threatened due to such development programmes as creation of reservoirs, mining, forest clearing, laying of transport and communication networks, etc. It is estimated that in the world wide perspective, slightly over 1000 animal species and sub-species are threatened with an extinction rate of one per year, while 20,000 flowering plants are thought to be at risk.

#### Conservation Measures

##### Biospheres:

3.6 Areas rich in biodiversity and encompassing unique and representative ecosystems are identified and designated as Biosphere Reserves. The goal is to facilitate conservation of representative landscape and India's immense biological diversity as described above. Till date, 14 Biosphere Reserves have been set up. The last one was set up in 30.3.2005 at Achankmar-Amarkantak in parts of Districts of MP and Chattisgarh State.

##### Project Tiger

3.7 As per the recommendations of a special task-force of the Indian Board of

Wildlife, Project Tiger was launched in 1973 with the following objectives:-

- To ensure maintenance of available population of tiger in India for scientific, economic, aesthetic, cultural and ecological value.
- To preserve, for all times, the areas of such biological importance as a national heritage for the benefit, education and enjoyment of the people.

3.8 At present, there are 28 Tiger Reserves spreading over 14 states and covering an area of about 37,761 sq. kms. The population of tigers is estimated through tiger census conducted once in 4 to 6 years. The last such census was conducted in 2001-02.

### **National Parks and Wild life Sanctuaries**

The wild life Act provided for setting up National parks and sanctuaries for wild life. The basic idea in trying to encourage wild life is that human welfare is initially linked with it. The Government of India has pledged for all out efforts to conserve which not only seeks to protect and preserve what remains of wild fauna and flora but also seeks to augment this priceless national heritage.

3.9 Multipronged pressures on forests come from population, cattle grazing, fuel and fodder collection, industry and forest fires, etc. The remaining good forest cover is, therefore, estimated to be just 11% against the desirable 33% of the total land area as per the National Forest Policy. Up to the late seventies, forest land was a prime target for diversion for resettlement, agriculture and industrialization, and this trend was contained only by the Forest (Conservation) Act, 1980.

3.10 A two pronged strategy to increase forest cover essentially comprises

- Improving canopy cover in the forest land; and

- Undertaking afforestation in non-forest and degraded lands, preferably contiguous to forest blocks.

3.11 Realising the role of forests in controlling soil erosion, moderation of floods, recharging of ground aquifers, as habitat for wildlife, conservation of biodiversity and gene pool, etc., programmes were launched as early as the Second Five Year Plan for extensive Watershed Management followed later by establishment of a Protected Areas Network, under the Wildlife (Protection) Act, 1972, comprising of Biosphere Reserves, National Parks and Sanctuaries- both terrestrial and aquatic. This Network comprised of 14 Biosphere Reserves, 90 National Parks, 502 Wildlife Sanctuaries, along with such dedicated conservation programmes as Project Tiger, Crocodile Rehabilitation and Project Elephant. The Central Zoo Authority caters to the ex-situ conservation of wildlife through 275 zoos, deer parks, safari parks and aquaria, etc. India is also signatory to several International Conventions like CITES, International Whaling Convention (IWC); Convention on Migratory Species (CMS), World Heritage Convention (WHC), etc. India has recently taken the lead in the formation of the Global Tiger Forum.

### **Agro Biodiversity**

3.12 The National Bureau of Plant Genetic Resources (NBGR) established in 1976 as an institution under Indian Council of Agricultural Research (ICAR) emerged as an important organization dealing with various establishments of plant genetic resources. The organization is entrusted with the vital responsibility of germ plasm, exchange with appropriate quarantine measures, survey exploration, their organization, planning and coordination, comprising evaluation, documentation and conservation of diverse plant genetic resources. The National Gene Bank has also been established within the complex. Within

**TABLE 3.1.1 : NUMBER AND STATUS OF PLANT SPECIES IN INDIA**

Sl. No.	Type	No. of Known Species in the World	No. of Known Species in India	Percentage of Occurrence in India	No. of Species Endemic	No. of Species Endangered	No. of Species Extinct
1	2	3	4	5	6	7	8
<b>I</b>	<b>Flowering Plants</b>						
1	Gymnosperm	650	48	7.38	8*	7*	Not Known
2	Angiosperm	250000	17672	7.00	5725*	1700*	28
<b>II</b>	<b>Non-flowering Plants</b>						
1	Fern & Fernallics	10000	1135	11.35	193*	113*	Not Known
2	Algae	40000	6500	16.25	1100*	120*	Not Known
3	Fungi	70000	14500	20.71	3500*	140*	Not Known
4	Lichens	13500	2021	14.97	417*	400*	Not Known
5	Liverworts	7500	852	11.26	260*	100*	Not Known
6	Mosses	7000	2000	28.6	608*	115	Not Known

Source : Botanical Survey of India, Kolkata.

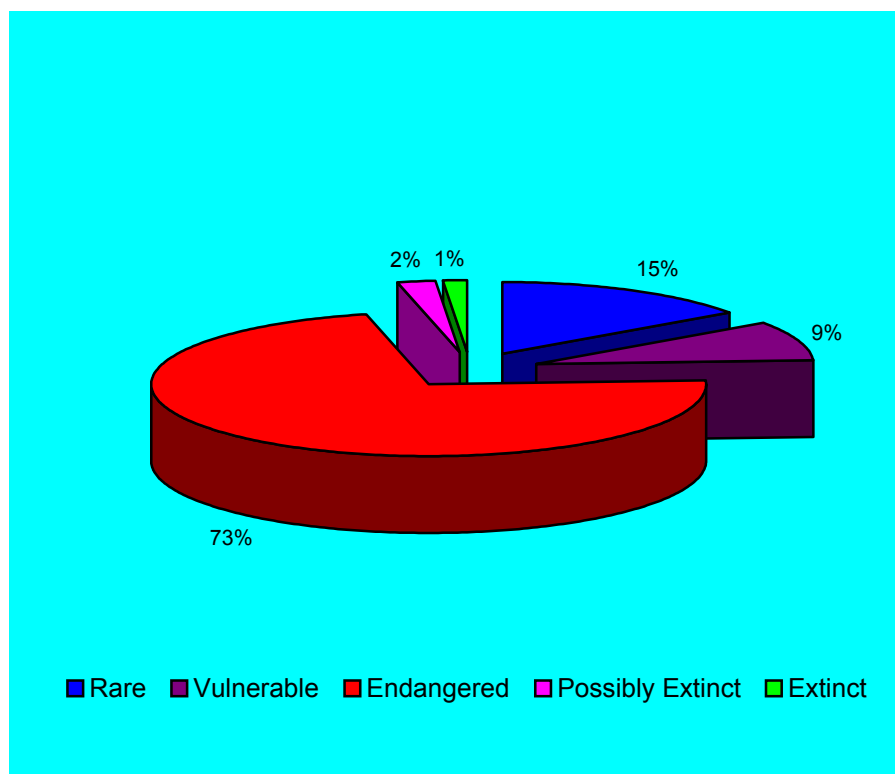
\* : Approximate

India has a rich heritage of species and genetic strains of flora. Overall about six percent of world species are found in India. It is estimated that India is tenth among the plant rich countries of the world and sixth among the centres of diversity and origin of agrobiodiversity. Out of the total twelve biodiversity hot-spots in the world, India has two, one is the north east region and other is western ghats (Khoshoo, T.N., 1995). The growing urbanization and industrialization causes the decrease of Natural habitats, which further results in the loss to biological diversity. Biodiversity, once lost cannot be recovered.

**TABLE 3.1.2 : RARE AND THREATENED SPECIES  
(VASCULAR PLANTS)**

Sl. No.	Category	Approximate Number
1	2	3
1	Rare	287
2	Vulnerable	167
3	Endangered	1366
4	Possibly Extinct	40
5	Extinct	28

Source : Botanical Survey of India, Kolkata.



**TABLE 3.1.3 : REFERENCE COLLECTIONS OF FLORA**

Sl. No.	Category	Total Number	Total Holdings of Collections and Specimens
1	2	3	4
1	Herbarium	51	4594795
2	Museums	18	60100

Source : Botanical Survey of India, Kolkata.

**TABLE 3.1.4 : CONSERVATION MEASURES**

Sl. No.	Category	Number	Total Geographical Area (Sq. Km.)
1	2	3	4
<b>I</b>	<b>Within Habitats (insitu)</b>		
1	Biosphere Reserves	13	53849
2	National Parks	89	40631
3	Sanctuaries	484	115374
4	Reserve Forests	NA	416547
5	Protected Forests	19	223321
<b>II</b>	<b>Outside Habitats (ex situ)</b>		
1	Botanical Gardens	120	26.24
2	Gene Banks	NA	NA

Source : Botanical Survey of India, Kolkata.

**TABLE 3.1.5 : BIOSPHERE RESERVES SETUP IN INDIA**

Sl. No.	Name of Biosphere Reserve	Area (in sq.km.)	Date of Notification	Location (State) and Bio-Geographic Zones
1	2	3	4	5
1	Nilgiri	5520.00	01.08.1986	Part of Wynad, Nagarhole, Bandipur and Mudumalai, Nilambur, Silent Valley and Siruvani hills (Tamil Nadu, Kerala and Karnataka)-Western Ghats
2	Nanda Devi	5860.69	18.01.1988	Part of Chamoli, Pithoragarh & Almora Districts (Uttanchal)-West Himalayas
3	Nokrek	820.00	01.09.1988	Part of Garo Hills (Meghalaya)-East Himalayas
4	Manas	2837.00	14.03.1989	Part of Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup and Darang districts (Assam) East Himalayas
5	Sunderbans	9630.00	29.03.1989	Part of Delta of Ganges & Barahmaputra river system (West Bengal)-Gigantic Delta
6	Gulf of Mannar	10500.00	18.02.1989	Indian part of Gulf of Mannar between India and Sri Lanka (Tamil Nadu)-Coasts
7	Great Nicobar	885.00	06.01.1989	Southern Most Islands of Andaman and Nicobar (A&N Islands)-Islands
8	Similipal	4374.00	21.06.1994	Part of Mayurbhanj district (Orissa)-Deccan Peninsula
9	Dibru-Saikhowa	765.00	28.07.1997	Part of Dibrugarh and Tinsukhia districts (Assam)-East Himalayas
10	Dehang Debang	5112.00	02.09.1998	Part of Siang and Debang Valley in Arunachal Pradesh-East Himalayas
11	Pachmarhi	4926.28	03.03.1999	Part of Betul, Hoshangabad and Chindwara Districts of Madhya Pradesh-Semi-Arid-Gujarat Rajputana
12	Kanchanjunga	2619.92	07.02.2000	Parts of Kanchanjunga Hills in Sikkim-East Himalayas
13	Agasthyamalai	1701.00	12.11.2001	Part of Thirunelveli and Kanya kumari Districts in Tamil Nadu and Thiruvananthapuram, Kollam and Pathanmthita of Kerala
14	Achankmar-Amarkantak	3835.31	30.3.2005	Part of Anupur and Dindori Distt., of MP, part of Bilaspur distts., of Chhattisgarh State

Source: Ministry of Environment and Forests

**TABLE 3.1.6 : STATUS OF EX-SITU CONSERVATION (BASE COLLECTION)  
OF ORTHODOX SEEDS, AT -20<sup>0</sup> C**

*(As on 31<sup>st</sup> March, 2005)*

Sl. No.	Crop Group	Species	Accessions*
1	2	3	4
1	Cereals	92	122652
2	Milletts & Forages	20	43266
3	Pseudo Cereals	20	4172
4	Grain Legumes	59	42905
5	Oilseeds	21	38181
6	Fibre Crops	16	8674
7	Vegetables	55	17150
8	Fruits	7	172
9	Medicinal & Aromatic Plants & Narcotics	196	2683
10	Spices & Condiments	10	607
11	Agro-Forestry	6	302
12	Duplicate Safety Samples	2 (included in grain legumes)	10235
<b>Total</b>		<b>502</b>	<b>290999</b>

Source : National Bureau of Plant Genetic Resources

\* : The figure includes 2535 released varieties and 646 genetic stocks in respective crop groups.



TABLE 3.1.7 : STATUS OF IN-VITRO CONSERVATION

(As on 31<sup>st</sup> March, 2005)

Sl. No.	Crop groups/Crops	Storage Temp. (°C)	Optimum Subculture Interval (Months)	No. of Accessions in Culture
1	2	3	4	5
<b>I</b>	<b>Fruits</b>			
1	Musa spp.	25	8-12	383
2	Actinidia spp	25	10--12	3
3	Aegle marmelos	25	12	1
4	Fragaria spp	25	8-10	48
5	Prunus spp.	25	4--6	2
6	Rubus spp.	25	8--10	5
7	Malus spp.	25	4--6	4
8	Morus sp.	25	8--10	48
9	Vitis vinifera	25	3--4	3
<b>II</b>	<b>Bulbous Crops</b>			
1	Allium sativum	25, 4	6-12	139
2	Allium spp.	25, 4	4-23	16
<b>III</b>	<b>Tuber Crops</b>			
1	Alocasia spp.	25	10	3
2	Colocasia esculenta	25	8-10	141
3	Dioscorea spp.	25	8-12	85
4	Ipomoea batatas	25	8-12	255
5	Xanthosoma sagittifolium	25	10	9
<b>IV</b>	<b>Medicinal and Aromatic Plants</b>			
1	Aristolochia indica	25	-	1
2	Bacopa monnieri	25	6	16
3	Centella asiatica	-	-	9
4	Coleus aromaticus	-	-	3
5	Coleus forskohlii	25	12	14
6	Cholorophytum sp.	-	-	2
7	Costus speciosus	-	-	1
8	Curculigo orchoides	-	-	2
9	Digitalis spp.	4	11	6
10	Eremostachys superba	4	10	2
11	Gentiana kurroo	4	12	1
12	Kaempferia galanga	25	-	5
13	Kaempferia rotundata	25	-	4
14	Mentha sp.	4	12	24
15	Peristrophe bicalyculata	-	-	1
16	Picrorhiza kurroa	4	12	9
17	Plumbago zeylanica	25	6-10	11
18	Pogostemon patchouli	25	12	2
19	Pycnanthemum spp.	4	12	4
20	Rauvoljia spp.	25	12	11
21	Rheum spp.	4	12	5
22	Saussurea lappa	4	12	3
23	Swertia chirayta	4	6	3
24	Tylophora indica	25	6--12	10
25	Valeriana wallichii	4	12	10
<b>V</b>	<b>Spices</b>			
1	Curcuma spp.	25	6-10	117
2	Elettaria spp	25	15	5
3	Piper spp.	25	10-22	10
4	Zingiber spp.	25	8-24	184
5	Vanilla planifolia	25	6	4
<b>VI</b>	<b>Industrial Plants</b>			
1	Humulus lupulus	25	-	8
2	Simmondsia chinensis	25	6	12
<b>VII</b>	<b>Others</b>			
	Cicer microphyllum	-	-	1
	Gladiolous cv.	-	-	4
<b>Total</b>				<b>1649</b>

Source : National Bureau of Plant Genetic Resources

**TABLE 3.1.8 : STATUS OF GERMLASM AT NATIONAL CRYOBANK***(As on 31<sup>st</sup> March, 2005)*

Sl. No.	Category	No. of Accession
1	2	3
<b>I</b>	<b>Intermediate &amp; Recalcitrant</b>	
1	Fruits & Nuts	1419
2	Spices & Condiments	95
3	Plantation Crops	19
4	Agroforestry & Firestry species	1712
5	Industrial crops	145
<b>II</b>	<b>Orthodox</b>	
1	Cereals	208
2	Milletts and Forages	282
3	Pseudocereals	76
4	Grain Legumes	616
5	Oilseeds	339
6	Fibre	58
7	Vegetables	411
8	Medicinal & Aromatic Plants	638
9	Narcotics & dyes	32
10	Miscellaneous	9
<b>Total</b>		<b>6059</b>

Source : National Bureau of Plant Genetic Resources

Note : Total number of Speices - 573

**TABLE 3.1.9 : STATUS OF CRYOPRESERVATION OF POLLEN***(As on 31<sup>st</sup> March, 2005)*

Sl. No.	Plant Species	No. of Accession
1	2	3
1	Brassica spp. (oleracea, napus, campestris, carinata, juncea, nigra)	43
2	Camellia sinensis	1
3	Cicer microphyllum	1
4	Citrus spp.	5
5	Eruca species	2
6	Garcinia spp.	4
7	Mangifera indica	132
8	Poncirus trifoliata	1
9	Raphanus sativus	4
10	Sesamum spp.	1
11	Zea mays & allied genera	9
12	Litchi chinensis	19
<b>Total</b>		<b>222</b>

Source : National Bureau of Plant Genetic Resources

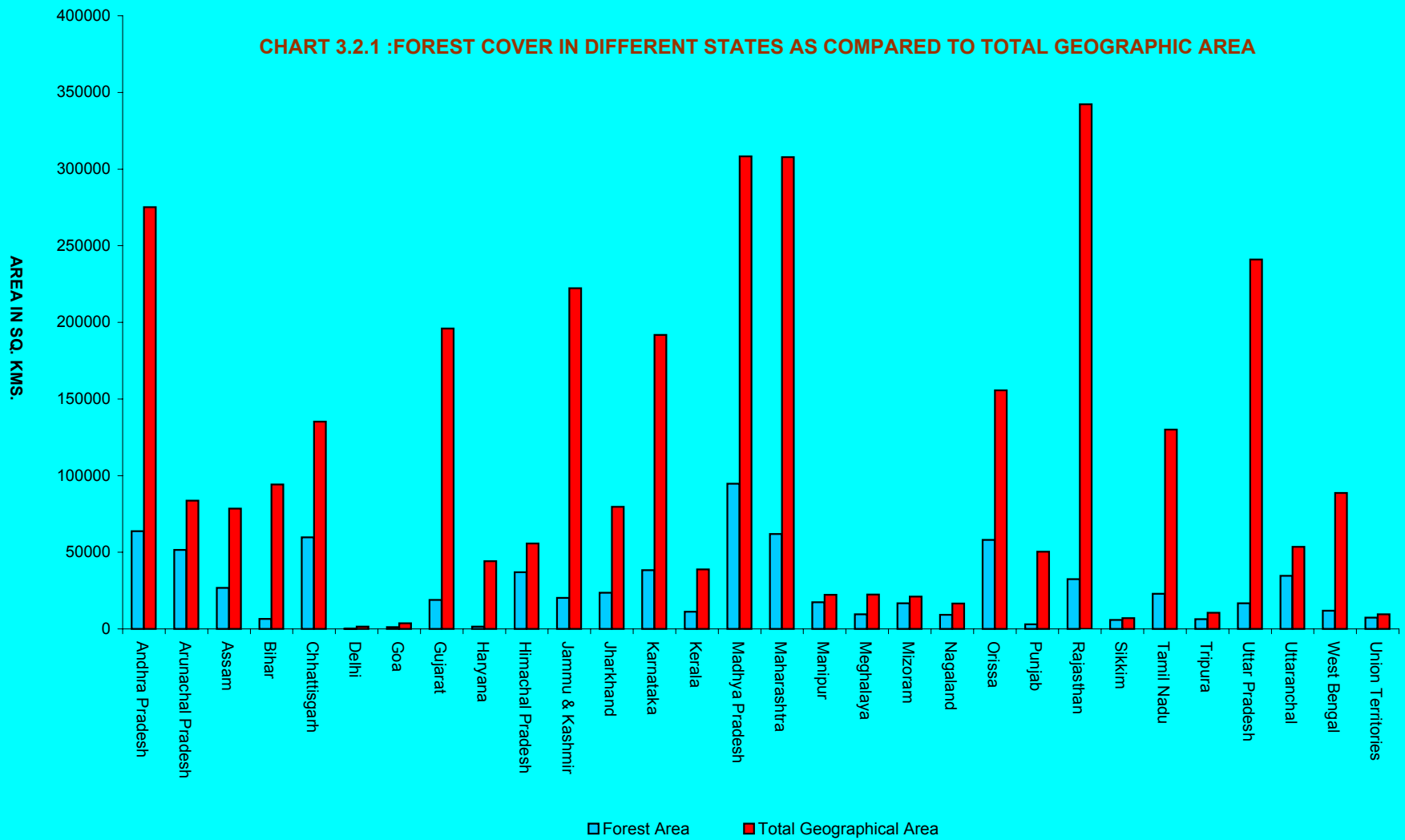
**TABLE 3.2.1 : STATE/UT WISE FOREST AREA***(Sq.km)*

Sl. No.	State/UT	Geographic Area	Recorded Forest Area, 2005				Percentage of Forest to Geo. Area
			Reserved Forest	Protected Forest	Unclassed Forest	Total Forest Area	
1	2	3	4	5	6	7	8
1	Andhra Pradesh	275069	50479	12365	977	63821	23.20
2	Arunachal Pradesh	83743	10546	9528	31466	51540	61.55
3	Assam	78438	17864	-	8968	26832	34.21
4	Bihar	94163	693	5779	1	6473	6.87
5	Chhattisgarh	135191	25782	24036	9954	59772	44.21
6	Delhi	1483	78	7	-	85	5.73
7	Goa	3702	237	-	987	1224	33.06
8	Gujarat	196022	14067	696	4199	18962	9.67
9	Haryana	44212	249	1158	152	1559	3.53
10	Himachal Pradesh	55673	1896	33043	2094	37033	66.52
11	Jammu & Kashmir	222236	17643	2551	36	20230	9.10
12	Jharkhand	79714	4387	19185	33	23605	29.61
13	Karnataka	191791	28690	3931	5663	38284	19.96
14	Kerala	38863	11123	142	-	11265	28.99
15	Madhya Pradesh	308245	61886	31098	1705	94689	30.72
16	Maharashtra	307713	49226	8195	4518	61939	20.13
17	Manipur	22327	1467	4171	11780	17418	78.01
18	Meghalaya	22429	1112	12	8372	9496	42.34
19	Mizoram	21081	7909	3568	5240	16717	79.30
20	Nagaland	16579	86	508	8628	9222	52.05
21	Orissa	155707	26329	15525	16282	58136	37.34
22	Punjab	50362	44	1137	1903	3084	6.12
23	Rajasthan	342239	11860	17652	2976	32488	9.49
24	Sikkim	7096	5452	389	-	5841	82.31
25	Tamil Nadu	130058	19388	2183	1306	22877	17.59
26	Tripura	10486	4175	2	2117	6294	60.02
27	Uttar Pradesh	240928	11509	1837	3450	16796	6.97
28	Uttaranchal	53483	24638	9882	131	34651	64.79
29	West Bengal	88752	7054	3772	1053	11879	13.38
30	Union Territories	9478	3159	4253	2	7414	78.18
<b>Total</b>		<b>3287263</b>	<b>419028</b>	<b>216605</b>	<b>133993</b>	<b>769626</b>	<b>23.41</b>

Source : State of Forest Report 2005

India has 76.96 million hectares of recorded forest area in March 2005. This accounts for 23.41% of total geographic area. Per Capita availability of forests in India is 0.06 ha which is much lower than the world average of 0.8 ha.

CHART 3.2.1 :FOREST COVER IN DIFFERENT STATES AS COMPARED TO TOTAL GEOGRAPHIC AREA



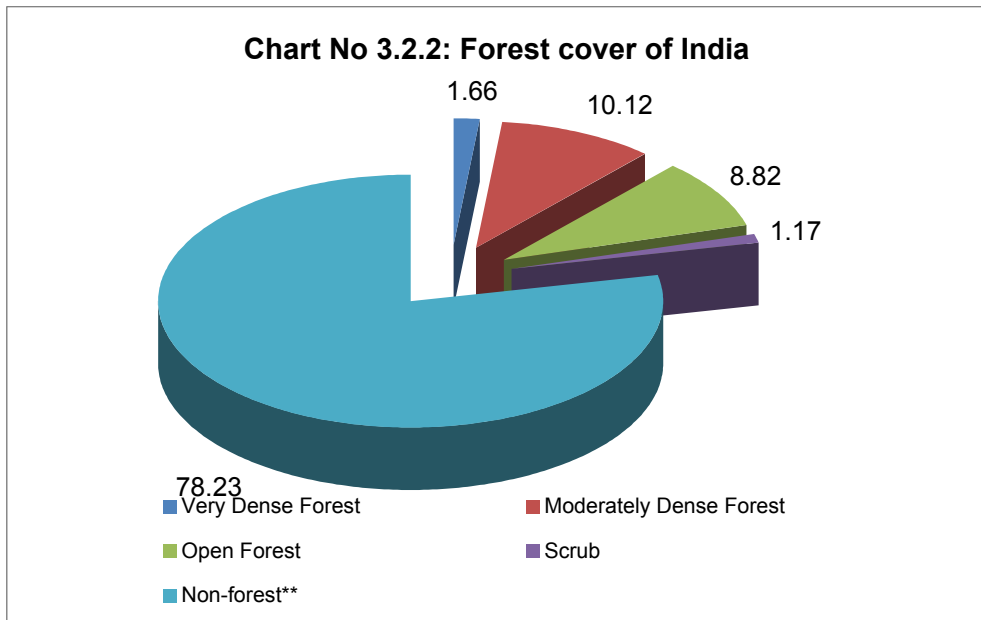
**TABLE 3.2.2 : FOREST COVER IN INDIA 2005**

Class	Area ( Sq. Km <sup>1</sup> )	Percentage of Geographic Area
1	2	3
<b>Forest Cover</b>		
Very Dense Forest	54569	1.66
Moderately Dense Forest	332647	10.12
Open Forest	289872	8.82
<b>Total Forest Cover*</b>	<b>677088</b>	<b>20.60</b>
<b>Non-Forest Cover</b>		
Scrub	38475	1.17
Non-forest**	2571700	78.23
<b>Total Geographic Area</b>	<b>3287263</b>	<b>100</b>

Source : State of Forest Report, 2005

\* : Includes 4461 km<sup>2</sup> under mangroves (0.14% of country's geographic area)

\*\* : Excludes scrubs and includes water bodies



**TABLE 3.2.3(a) : FOREST AREA BY OWNERSHIP(during 2001-02)**

(Sq.km)

Sl. No.	State/ Union Territory	Forest Department					Others		
		Reserved	Protected	Unclassed	Total	Area Under Sanctioned Working Plans	Revenue Department Forests	Corporate Bodies Forest/ Community Ownership	Private Forest
1	2	3	4	5	6	7	8	9	10
1	A&N Islands	2928.76	4241.93	Nil	7170.69	7170.69	Nil	Nil	Nil
2	Andhra Pradesh	50479.00	12365.00	970.00	63814.00	-	-	-	-
3	Arunachal Pradesh	10177.60	9535.79	31826.52	51540.00	1053.91	-	NA	NA
4	Assam	15203.00	Nil	8957.00	24160.00	15203.00	5893.00	Nil	Nil
5	Bihar	664.23	5834.73	-	6498.96	6498.96	12200.00	10160.00	-
6	Chhattisgarh	25782.17	24036.10	9954.12	59772.39	-	-	-	-
7	Dadra & Nagar Haveli	198.76	4.82	Nil	203.58	198.76	Nil	Nil	Nil
8	Goa	235.89	795.51	192.98	1224.38	-	2477.62	-	200.00
9	Gujarat	14180.03	377.02	4523.94	19080.99	13873.44	-	-	-
10	Haryana	249.00	1158.00	17.00	1424.00	867.00	-	-	133.00
11	Himachal Pradesh	1896.00	33043.00	977.00	35916.00	24535.00	-	42.00	1075.00
12	Jammu & Kashmir	2551.20	17643.00	36.00	20230.00	20194.00	NA	NA	NA
13	Jharkhand	4387.20	19184.78	33.49	23605.47	14329.49	-	-	-
14	Karnataka	28689.97	3930.70	5230.99	37851.66	37651.66	124.20	308.42	-
15	Kerala	11119.63	128.66	15.5	11263.79	2944.33	Nil	Nil	Nil
16	Madhya Pradesh	58734.00	35587.00	900.00	95221.00	79592.00	na	na	na
17	Maharashtra	43916.00	7992.00	3459.00	55367.00	42617.00	2449.00	3563.00	560.00
18	Manipur	1467.00	4171.00	11780.00	17418.00	NA	NA	NA	NA
19	Meghalaya	712.74	12.39	399.48	1124.61	-	-	-	-
20	Mizoram	7127.00	3568.00	5240.00	15935.00	-	-	1369.00	-
21	Nagaland	85.83	507.56	192.47	-	-	-	-	7621.07
22	Orissa	26329.12	15524.46	20.55	41874.13	30281.45	16261.34	-	12.29
23	Punjab	43.36	1119.40	191.06	1353.82	1353.51	-	859.65	842.19
24	Rajasthan	11859.95	17651.68	2976.38	32488.01	-	-	-	-
25	Sikkim	2261.00	285.00	104.00	2650.00	Nil	Nil	Nil	Nil
26	Tamil Nadu	19388.00	2183.00	1306.00	22877.00	20751.00	21317.00	2500.00	214.00
27	Tripura	3588.18	509.03	2195.47	6292.68	Nil	Nil	Nil	Nil
28	Uttar Pradesh	11105.00	2530.00	3191.00	16826.00	-	15.00	53.00	14.00
29	Uttaranchal	23819.76	124.96	44.04	23988.76	23819.76	5140.55	5469.85	62.36
30	West Bengal	7113.79	3958.58	1018.11	12090.48	395.29	Nil	Nil	Nil

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FOREST

Source : Forestry Statistics India, 2003

Note: Blank cell indicates information is not available

**TABLE 3.2.3(b) : FOREST AREA BY COMPOSITION (during 2001-02)**

(sq.km)

Sl. No.	State/ Union Territory	Coniferous forest			Non-coniferous Forest				Coniferous & Non-coniferous mixed
		Chir	Deodar	Others Conifers	Sal	Teak	Mangrove	Others	
1	2	3	4	5	6	7	8	9	10
1	Andhra Pradesh	-	-	-	47.00	9145.00	333.00	54289.00	-
2	Arunachal Pradesh	243.00	NA	3530.00	NA	NA	NA	47767.00	NA
3	Chhattisgarh	Nil	Nil	Nil	24244.88	5633.13	-	29894.38	-
4	Dadra & Nagar Haveli	Nil	Nil	Nil	Nil	Nil	Nil	203.58	-
5	Goa	-	-	-	-	95.10	18.05	1111.23	-
6	Gujarat	-	-	-	-	4859.24	1577.72	12644.02	-
7	Haryana	23.00	-	-	30.00	-	-	1371.00	-
8	Himachal Pradesh	1336.00	854.00	6760.00	183.00	129.00	476.00	6170.00	15908.00
9	Jammu & Kashmir	1825.00	1075.00	5369.00	-	-	-	1885.00	10076.00
10	Jharkhand	NA	NA	NA	23605.47	NA	NA	NA	NA
11	Karnataka	Nil	Nil	Nil	Nil	Nil	Nil	11413.84	-
12	Kerala	Nil	Nil	Nil	Nil	748.72	15.50	10499.57	Nil
13	Madhya Pradesh	-	-	-	3716.72	17040.62	-	29977.81	-
14	Maharashtra	Nil	Nil	Nil	Nil	9508.00	108.00	33001.00	Nil
15	Meghalaya	Nil	Nil	145.14	Nil	Nil	Nil	732.94	Nil
16	Orissa	NA	NA	NA	972.15	608.96	219.00	29751.94	-
17	Punjab	121.75	-	-	-	-	-	26.59	2907.32
18	Rajasthan	-	-	-	-	942.24	-	31545.77	-
19	Sikkim	Nil	Nil	949.80	24.55	Nil	Nil	-	1192.73
20	Tamil Nadu	-	-	-	-	195.00	-	250.00	-
21	Tripura	Nil	Nil	Nil	1829.00	507.34	947.16	2092.86	916.32
22	Uttar Pradesh	-	-	-	1876.00	270.00	-	12449.00	-
23	Uttaranchal	4121.66	246.75	1196.97	2563.67	216.25	-	2936.99	12706.43
24	West Bengal	-	-	89.00	-	-	2109.00	-	9892.48

Source : Forestry Statistics India, 2003

Note: Blank cell indicates information is not available

Nonresponding States A & N Island, Assam, Bihar, Delhi, Manipur, Mizoram and Nagaland.

**TABLE 3.2.4(a) : COMPARATIVE SITUATION OF FOREST COVER IN INDIA**

(Sq.KM)								
SI. No.	States/Uts	2005 Assessment	2003* Assessment	2001* Assessment	1999 Assessment	Change in 2001	Change in 2003	Change in 2005
1	2	3	4	5	8	6	7	
1	Andhra Pradesh	44372	44412	43195	44229	-1034	1217	-40
2	Arunachal Pradesh	67777	67692	69760	68847	913	-2068	85
3	Assam	27645	27735	25290	23688	1602	2445	-90
4	Bihar	5579	5573	5375	4830	545	198	6
5	Chhatisgarh	55863	55992	57730	56693	1037	-1738	-129
6	Delhi	176	174	125	88	37	49	2
7	Goa	2164	2164	1565	1251	314	599	0
8	Gujarat	14715	14814	12913	12965	-52	1901	-99
9	Haryana	1587	1576	1135	964	171	441	11
10	Himachal Pradesh	14369	14359	12907	13082	-175	1452	10
11	Jammu & Kashmir	21273	21273	19886	20441	-555	1387	0
12	Jharkhand	22591	22569	22531	21644	887	38	22
13	Karnataka	35251	35246	33296	32467	829	1950	5
14	Kerala	15595	15595	13417	10323	3094	2178	0
15	Madhya Pradesh	76013	76145	75282	75137	145	863	-132
16	Maharashtra	47476	47514	45040	46672	-1632	2474	-38
17	Manipur	17086	17259	17889	17384	505	-630	-173
18	Meghalaya	16988	16925	16535	15633	902	390	63
19	Mizoram	18684	18583	16397	18338	-1941	2186	101
20	Nagaland	13719	14015	13980	14164	-184	35	-296
21	Orissa	48374	48353	49044	47033	2011	-691	21
22	Punjab	1558	1545	1628	1412	216	-83	13
23	Rajasthan	15850	15821	14542	13871	671	1279	29
24	Sikkim	3262	3262	3164	3118	46	98	0
25	Tamil Nadu	23044	23003	20992	17078	3914	2011	41
26	Tripura	8155	8123	8869	5745	3124	-746	32
27	Uttar Pradesh	14127	14127	10778	10756	22	3349	0
28	Uttaranchal	24442	24460	23354	23260	94	1106	-18
29	West Bengal	12413	12389	10392	8362	2030	1997	24
30	A. & N. Islands	6629	6807	6621	7606	-985	186	-178
31	Chandigarh	15	15	13	7	6	2	0
32	Dadra & Nagar Haveli	221	221	217	202	15	4	0
33	Daman & Diu	8	8	6	3	3	2	0
34	Lakshadweep	25	25	12	0	12	13	0
35	Pondicherry	42	42	18	0	18	24	0
<b>Total</b>		<b>677088</b>	677816	653898	637293	16605	23918	-728

Source : State of Forest Report, 2005

\*: Revised

In the year 2005, as compared to 2003, the total forest cover had decreased by 728 Sq. Kms. The states which have shown significant decrease in the forest covers are Nagaland, A & N Islands, Manipur, Madhya Pradesh, Chhatisgarh, Gujarat, Assam, Maharashtra, Whereas the states of Mizoram, Arunachal Pradesh, Meghalaya, Tamil Nadi, Tripura, West Bengal have shown an increase in forest cover.



**TABLE 3.2.4(b) : CHANGES IN FOREST COVER OF THE NORTH-EASTERN REGION***(Sq. Km.)*

Sl. No.	State	Forest Cover 2005 Assessment					
			1995-97	1997-99	1999-2001	2001-03	2003-05
1	2	3	6	7	8	9	10
1	Arunachal Pradesh	67777	- 19	+ 245	- 802	- 26	85
2	Assam	27645	- 237	- 136	+ 4026	+ 112	-90
3	Manipur	17086	- 140	- 34	- 458	+ 293	-173
4	Meghalaya	16988	- 57	- 24	- 49	+ 1255	63
5	Mizoram	18684	+ 199	- 437	- 844	+ 936	101
6	Nagaland	13719	- 70	- 57	- 819	+ 264	-296
7	Tripura	8155	+ 8	+ 199	+ 1320	+ 1028	32
<b>Total</b>		<b>170054</b>	<b>- 316</b>	<b>- 244</b>	<b>+ 2374</b>	<b>+ 3532</b>	<b>-278</b>

Source : State of Forest Report, 2005

The forest cover in the North-Eastern Region (NER) is about 67% of the Geographical Area.

There has been a decrease in the forest cover in 2005 over the year 2003 by 278 sq. km. There was significant increase in forest cover in 2001 over 1999 and in 2003 over 2001.

**TABLE 3.2.5 :STATE-WISE PRODUCTION OF FOREST PRODUCE .....Contd.**

Sl. No.	State/Union Territory	Round Wood				Woof Fuel		Canes/Rattans		Bamboo	
		C (cum)		NC (cum)		(cum)	(cum)				
		2000-01	2000-01	2001-02	2001-02	2000-01	2001-02	2000-01	2001-02	2000-01	2001-02
1	2	3	4	5	6	7	8	9	10	11	12
1	Andhra Pradesh	-	29490.08	-	18364.80	32073.45	4191.16	-	-	66476.69	58182.91MT
2	Arunachal Pradesh	2057.00	-	15546	-	23265.07	38221.76	26112889RMT	10627920RMT	136247Nos.	28398Nos.
3	Assam	Nil	Nil	Nil	Nil	277.86	6681.94	NA	NA	5Lakh NTAD	5 Lakh NTAD
4	Chhattisgarh	Nil	60092.00	Nil	115435.00	109655.17	129640.69	Nil	Nil	71046 NT	77031 NT
5	Goa	-	10144.00	-	13538.37	22369.63	23944.24	7560RMT	259600RMT	936000RMT	611952 RMT
6	Gujarat	-	10129.38	-	9671.11	30963.73	44203.51	.60MT	7.3MT	128281MT	64917 MT
7	Haryana	-	125345.00	-	110937.00	83287.00	70647.00	-	-	19.90MT	52 MT
8	Himachal Pradesh	5451.54	28218.93	10397.11	23196.41	-	8700.80	Nil	Nil	4087.27MT	4829.17 Mt.
9	Jammu & Kashmir	102480.00	-	152180	-	5859.20	8700.80	393039Nos.	441592 Nos.	224819CUM	191152CUM
10	Karnataka	-	39856.00	-	54056.00	294118.00	313453.00	1390456Nos.	820385 Nos.	10594Nos.	Nil
11	Kerala	-	31299.00	-	38915.00	10131.00	13978.00	Nil	Nil	111070.675NT	97672.023 NT
12	Madhya Pradesh	-	242011.66	-	564162.07	323659.50	499224.00	Nil	Nil	187619Nos.	213417 Nos.
13	Maharashtra	Nil	56.00	Nil	45.00	152.00	107.00	-	-	19840422Nos.	17843568 Nos.
14	Mizoram	Nil	4.84	Nil	6.30	6481.06	Nil	439250RMT	189250 Nos.-	223450Nos.	35430 Nos.
15	Orissa	-	33867.49	-	10423.67	19280.30	19413.40	-	-	7597.2MT	116.35 MT
16	Punjab	-	5051.00	1995	141826.00	193267.00	6930.00	-	-	808895Nos.akh	493752 Nos.
17	Rajasthan	-	25675.08	-	22541.36	62295.11	487421.40	Nil	Nil	19.26L	17.98 Lakh
18	Sikkim	Nil	nil	Nil	Nil	297.61	168.29	Nil	Nil	199124.86MT	138651 MT
19	Tamil Nadu	-	229.64	-	142273.00	181689.00	110528.00	1737 Bundles	30 Bundles	3578720.00	3368200 Nos.
20	Tripura	-	297.66	-	894.35	2474.72	4631.96	.12MT	Nil	54480Nos.	-
21	Uttar Pradesh	-	177182.00	-	171297.00	28490.00	25561.00	Nil	Nil	89.38NT	119.13 NT
22	Uttaranchal	104829.08	91015.48	112045.53	114737.49	7509.39	6791.80	-	-	-	-
23	West Bengal	3686.00	45411.00	5252	22853.00	189735.00	270729.00	-	-	-	-
<b>Total</b>		<b>263410.62</b>	<b>910469.24</b>	<b>297415.64</b>	<b>1575172.92</b>	<b>1627033.20</b>	<b>2093868.75</b>				

Source: Forestry Statistics in India, 2003

Note: Blank cell indicates information is not available

C : Coniferous

NC : Non- coniferous

**TABLE 3.2.5 :STATE-WISE PRODUCTION OF FOREST PRODUCE --Concl.d.**

FORESTS

Sl. No.	State/Union Territory	Sal Seed (M. Tonne)		Tendu/Kendu/Biddi Leaves (M. Tonne)		Gums (Metric Tonne)		Resin (Metric Tonne)	
		2000-01	2001-02	2000-01	2001-02	2000-01	2001-02	2000-01	2001-02
1	2	13	14	15	16	17	18	19	20
1	Andhra Pradesh	-	-	56192.16	53239.12	78.08	89.50	-	-
2	Arunachal Pradesh					NA	NA	1199.74	1115.65
3	Chhattisgarh	33300.00	47700.00	78640.00	66640.00	168.61	132.35	Nil	-
4	Gujarat	-	-	2237.55	2030.35	0.30	0.93	-	-
5	Himachal Pradesh					-	-	7357.00	7354.00
6	Jammu &Kashmir					Nil	Nil	10958.00	10694.00
7	Jharkhand	1282.86	NA	3924.63	2774.17				
8	Karnataka	Nil	Nil	1278.00	1171.00	8.92	4.37	0.00	0.00
9	Kerala					Nil	Nil	121.00	155.50
10	Madhya Pradesh	104.49	120.60	117960.00	84880.00	78.36	65.89	Nil	Nil
11	Maharashtra	-	-	33125.00	29467.00	13.00	10.00	Nil	-
12	Orissa	20609.27	7494.59	51900.00	40700.00	90.60		Nil	
13	Punjab					-	-	80.86	86.00
14	Rajasthan	Nil	Nil	23815.24	18127.48				
15	Uttar Pradesh					45.00		-	
16	Uttaranchal	NA	Nil	NA	628.09	-	-	16359.49	20796.59
17	West Bebgal	1843.37	NA	371.22	NA				

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Source: Forestry Statistics in India, 2003  
 Note: Blank cell indicates information is not available  
 C : Coniferous  
 NC : Non- coniferous

**TABLE 3.2.6 (a) :PHYSIOGRAPHIC ZONE WISE TREE COVER ESTIMATED  
(From Trees Outside Forest)**

Sl. No.	Physiographic Zone	Geographic Area (Km <sup>2</sup> )	Trees per ha of CNFA	Tree Cover	
				Area (Km <sup>2</sup> )	% of Geog. Area
1	2	3	4	5	6
1	Western Himalayas	329255	21.74	6950	2.11
2	Eastern Himalayas	74618	10.18	255	0.34
3	North East	133990	15.28	1726	1.29
4	Northern Plains	295780	13.43	10747	3.63
5	Eastern Plains	223339	11.18	5447	2.44
6	Western Plains	319098	9.86	7815	2.45
7	Central Highlands	373674	9.39	8124	2.17
8	North Deccan	355988	9.41	7383	2.07
9	East Deccan	336289	10.61	11293	3.36
10	South Deccan	292416	10.98	7656	2.62
11	Western Ghats	72381	19.69	3886	5.37
12	Eastern Ghats	191698	11.11	3967	2.07
13	West Coast	127242	20.65	8307	6.85
14	East Coast	167493	17.67	8106	4.84
<b>Total</b>		<b>3287263</b>	<b>12.14</b>	<b>91663</b>	<b>2.79</b>
Source : State of Forest Report, 2005 CNFA : Culturable Non Forest Area					

**TABLE 3.2.6 (b):PHYSIOGRAPHIC ZONE WISE VOLUME OF GROWING STOCK**

Sl. No.	Physiographic Zone	Area of Phy.Zone (Km <sup>2</sup> )	Recorded Forest Area (Km <sup>2</sup> )	Growing Stock (volume in m.Cum)		
				In Forest	In Tree Outside Forest	Total
1	2	3	4	5	6	7
1	W. Himalayas	329255	91073	976.214	194.230	1170.444
2	E. Himalayas	74618	47965	500.364	67.470	567.834
3	North East Ranges	133990	79431	404.116	99.390	503.506
4	Northern Plains	295780	14230	169.448	113.803	283.251
5	Eastern Plains	223339	31709	295.808	91.437	387.245
6	Western Plains	319098	13666	6.314	82.215	88.529
7	Central Highlands	373675	80665	96.078	106.806	202.884
8	North Deccan	355988	87260	267.964	71.157	339.121
9	East Deccan	336289	128757	588.329	175.255	763.584
10	South Deccan	292416	49459	252.54	147.608	400.148
11	Western Ghats	72381	32399	463.315	109.329	572.644
12	Eastern Ghats	191698	74418	412.605	89.839	502.444
13	West Coast	121242	20765	84.829	158.329	243.158
14	East Coast	167494	17826	84.113	109.439	193.552
<b>Total</b>		<b>3287263</b>	<b>769621</b>	<b>4602.038</b>	<b>1616.244</b>	<b>6218.282</b>
Source : State of Forest Report, 2005 CNFA : Culturable Non Forest Area						

**TABLE 3.2.7 :STATE/UT WISE TREE COVER ESTIMATES**

Sl. No.	State/UT	Geographic Area (Km <sup>2</sup> )	Trees per ha of CNFA	Tree Cover	
				Area (Km <sup>2</sup> )	% of Geog. Area
1	2	3	4	5	6
1	Andhra Pradesh	275069	12.76	7640	2.78
2	Arunachal Pradesh	83743	11.07	446	0.53
3	Assam	78438	11.91	1484	1.89
4	Bihar	94163	10.80	2522	2.68
5	Chhattisgarh	135191	10.43	4492	3.32
6	Delhi	1483	26.44	107	7.22
7	Goa	3702	25.29	268	7.24
8	Gujarat	196022	13.41	7621	3.89
9	Haryana	44212	13.15	1565	3.54
10	Himachal Pradesh	55673	19.02	709	1.27
11	Jammu & Kashmir	222236	22.54	5633	2.53
12	Jharkhand	79714	11.01	3080	3.86
13	Karnataka	191791	11.09	5467	2.85
14	Kerala	38863	16.50	2632	6.77
15	Madhya Pradesh	308245	9.68	6267	2.03
16	Maharashtra	307713	11.16	8978	2.92
17	Manipur	22327	15.31	142	0.64
18	Meghalaya	22429	15.32	405	1.81
19	Mizoram	21081	15.65	122	0.58
20	Nagaland	16579	15.26	238	1.44
21	Orissa	155707	12.42	4589	2.95
22	Punjab	50362	13.61	1823	3.62
23	Rajasthan	342239	9.54	8379	2.45
24	Sikkim	7096	22.62	27	0.38
25	Tamil Nadu	130058	16.40	5621	4.32
26	Tripura	10486	15.31	134	1.28
27	Uttar Pradesh	240928	12.71	8203	3.40
28	Uttaranchal	53483	17.38	658	1.23
29	West Bengal	88752	11.43	2269	2.56
30	A. & N. Islands	8249	17.16	53	0.64
31	Chandigarh	114	37.11	9	7.89
32	Dadra & Nagar Haveli	491	18.98	28	5.70
33	Daman & Diu	112	13.08	9	8.04
34	Lakshadweep	32	15.20	4	12.50
35	Pondicherry	480	21.80	42	8.75
<b>Total</b>		<b>3287263</b>	<b>12.14</b>	<b>91663</b>	<b>2.79</b>

Source : State of Forest Report, 2005

CNFA : Culturable Non Forest Area

**TABLE 3.2.8 : FOREST COVER IN STATES/UTs IN INDIA***(Area in Sq. km)*

Sl. No.	State/UT	Geographic Area	Forest Cover Area			Percent of G.A.	Scrub
			Dense Forest	Open Forest	Total Forest		
1	2	3	4	5	6	7	8
1	Andhra Pradesh	275069	24329	20043	44372	16.13	9862
2	Arunachal Pradesh	83743	52388	15389	67777	80.93	128
3	Assam	78438	12831	14814	27645	35.24	146
4	Bihar	94163	3114	2465	5579	5.92	129
5	Chhattisgarh	135191	38728	17135	55863	41.32	91
6	Delhi	1483	54	122	176	11.87	0.62
7	Goa	3702	1150	1014	2164	58.45	2
8	Gujarat	196022	6138	8577	14715	7.51	1495
9	Haryana	44212	526	1061	1587	3.59	165
10	Himachal Pradesh	55673	8928	5441	14369	25.81	383
11	Jammu & Kashmir	222236	10529	10744	21273	9.57	2821
12	Jharkhand	79714	11622	10969	22591	28.34	733
13	Karnataka	191791	22098	13153	35251	18.38	3151
14	Kerala	38863	9660	5935	15595	40.13	70
15	Madhya Pradesh	308245	41082	34931	76013	24.66	2172
16	Maharashtra	307713	28384	19092	47476	15.43	4248
17	Manipur	22327	6464	10622	17086	76.53	39
18	Meghalaya	22429	7146	9842	16988	75.74	181
19	Mizoram	21081	6306	12378	18684	88.63	0
20	Nagaland	16579	5838	7881	13719	82.75	13
21	Orissa	155707	28194	20180	48374	31.07	4743
22	Punjab	50362	723	835	1558	3.09	15
23	Rajasthan	342239	4470	11380	15850	4.63	4527
24	Sikkim	7096	2410	852	3262	45.97	363
25	Tamil Nadu	130058	12440	10604	23044	17.72	1808
26	Tripura	10486	5030	3125	8155	77.77	59
27	Uttar Pradesh	240928	5979	8148	14127	5.86	738
28	Uttaranchal	53483	18398	6044	24442	45.70	320
29	West Bengal	88752	6079	6334	12413	13.99	68
30	A. & N. Islands	8249	6005	624	6629	80.36	3
31	Chandigarh	114	9	6	15	13.16	1
32	Dadra & Nagar Haveli	491	130	91	221	45.01	0
33	Daman & Diu	112	2	6	8	7.14	0
34	Lakshadweep	32	15	10	25	78.13	0
35	Pondicherry	480	17	25	42	8.75	0
<b>Total</b>		<b>3287263</b>	<b>387216</b>	<b>289872</b>	<b>677088</b>	<b>20.60</b>	<b>38475</b>

Source: State of Forest Report 2005

**TABLE 3.2.9 : STATE/UT WISE FOREST COVER IN HILL DISTRICTS***(Sq. km)*

Sl. No.	Name of State/UT	Number of Hill Districts	Geographic Area in Hill Districts	Forest Cover Area				Percent Forest Cover
				Very Dense Forest	Moderately Dense Forest	Open Forest	Total	
1	2	3	4	5	6	7	8	9
1	Arunachal Pradesh	13	83743	14411	37977	15389	67777	80.93
2	Assam	3	19153	752	5777	6522	13051	68.14
3	Himachal Pradesh	12	55673	1097	7831	5441	14369	25.81
4	Jammu & Kashmir	(a) 14	101388	1593	6328	7692	15613	15.40
		(b) *	120848	542	2066	3052	5660	4.68
5	Karnataka	6	48046	401	16305	5600	22306	46.43
6	Kerala	10	29572	748	7019	5044	12811	43.32
7	Maharashtra	7	69905	385	6362	5812	12559	17.97
8	Manipur	9	22327	923	5541	10622	17086	76.53
9	Meghalaya	7	22429	338	6808	9842	16988	75.74
10	Mizoram	8	21081	133	6173	12378	18684	88.63
11	Nagaland	8	16579	236	5602	7881	13719	82.75
12	Sikkim	4	7096	498	1912	852	3262	45.97
13	Tamil Nadu	5	22789	1164	2893	2172	6229	27.33
14	Tripura	4	10486	61	4969	3125	8155	77.77
15	Uttaranchal	13	53483	4002	14396	6044	24442	45.70
16	West Bengal	1	3149	472	893	856	2221	70.53
<b>Total</b>		<b>124</b>	<b>707747</b>	<b>27756</b>	<b>138852</b>	<b>108324</b>	<b>274932</b>	<b>38.85</b>

Source: State of Forest Report, 2005

\* : Area under illegal occupation of Pakistan and China.



**TABLE 3.2.10 : STATE/UT WISE FOREST COVER IN TRIBAL DISTRICTS****(Sq. km)**

Sl. No.	State/UT	Number of Tribal Districts	Geographic Area	Forest Cover				Percent Forest Cover
				Very Dense Forest	Moderately Dense Forest	Open Forest	Total	
1	2	3	4	5	6	7	8	9
1	Andaman & Nicobar	2	8249	3359	2646	624	6629	80.36
2	Andhra Pradesh	8	87090	51	16278	8974	25303	29.05
3	Arunachal Pradesh	13	83743	14411	37977	15389	67777	80.93
4	Assam	16	50137	639	4561	6778	11978	23.89
5	Chhattisgarh	9	92656	2002	25991	12208	40201	43.39
6	Dadra & Nagar Haveli	1	491	0	130	91	221	45.01
7	Daman & Diu	1	72	0	0.66	2.44	3.1	4.31
8	Gujarat	8	48409	105	3510	3270	6885	14.22
9	Himachal Pradesh	3	26764	459	1483	1253	3195	11.94
10	Jharkhand	8	44413	1552	5804	6281	13637	30.70
11	Karnataka	5	26597	246	8394	3555	12195	45.85
12	Kerala	9	27228	692	6673	4815	12180	44.73
13	Lakshadweep	1	32	0	15	10	25	78.13
14	Madhya Pradesh	18	139448	3638	20084	17129	40851	29.29
15	Maharashtra	11	138272	6701	11545	10769	29015	20.98
16	Manipur	9	22327	923	5541	10622	17086	76.53
17	Meghalaya	7	22429	338	6808	9842	16988	75.74
18	Mizoram	8	21081	133	6173	12378	18684	88.63
19	Nagaland	8	16579	236	5602	7881	13719	82.75
20	Orissa	12	86124	537	18885	13627	33049	38.37
21	Rajasthan	5	38218	0	2323	3952	6275	16.42
22	Sikkim	4	7096	498	1912	852	3262	45.97
23	Tamil Nadu	6	30720	543	2575	3492	6610	21.52
24	Tripura	4	10486	61	4969	3125	8155	77.77
25	Uttar Pradesh	1	7680	366	502	446	1314	17.11
26	West Bengal	11	69403	2285	3683	5827	11795	16.99
<b>Total</b>		<b>188</b>	<b>1105744</b>	<b>39775</b>	<b>204065</b>	<b>163192</b>	<b>407032</b>	<b>36.81</b>

Source: State of Forest Report 2005

**TABLE 3.2.11 (a) : STATE/UT WISE MANGROVE COVER ASSESSMENT***(Sq. km)*

SI No.	State/UT	1989	1991	1993	1995	1997	1999	2001	2003
		4	5	6	7	8	9	10	10
1	Andhra Pradesh	405	399	378	383	383	397	333	329
2	Goa	3	3	3	3	5	5	5	16
3	Gujarat	412	397	419	689	901	1031	911	916
4	Karnataka	0	0	0	2	3	3	2	3
5	Maharashtra	114	113	155	155	124	108	118	158
6	Orissa	192	195	195	195	211	215	219	203
7	Tamil Nadu	47	47	21	21	21	21	23	35
8	West Bengal*	2109	2119	2119	2119	2123	2125	2081	2120
9	Andaman & Nicobar	973	971	966	966	966	966	789	658
10	Pondicherry	0	0	0	0	0	0	1	1
11	Kerala	0	0	0	0	0	0	0	8
12	Daman & Diu	0	0	0	0	0	0	0	1
<b>Total</b>		<b>4255</b>	<b>4244</b>	<b>4256</b>	<b>4533</b>	<b>4737</b>	<b>4871</b>	<b>4482</b>	<b>4448</b>

Source: State of Forest Report 2005

\*: As per the West Bengal Forest Department, mangrove area in Sundarban is 4200 sq. km. which is almost double of the area estimated by FSI.

**TABLE 3.2.11 (b) : STATE/UT WISE MANGROVE COVER, 2005***(Sq. km)*

SI No.	State/UT	Very Dense Mangrove	Moderately Dense Mangrove	Open Mangrove	Total	Change w.r.t. 2003 assessment
1	2		4	5	6	7
1	Andhra Pradesh	0	15	314	329	0
2	Goa	0	14	2	16	0
3	Gujarat	0	195	741	936	20
4	Karnataka	0	3	0	3	0
5	Kerala	0	3	5	8	0
6	Maharashtra	8	58	100	158	0
7	Orissa	0	156	47	203	0
8	Tamil Nadu	0	18	17	35	0
9	West Bengal	892	895	331	2118	-2
10	Andaman & Nicobar	255	272	110	637	-21
11	Daman & Diu	0	0	1	1	0
12	Pondicherry	0	0	1	1	0
<b>Total</b>		<b>1147</b>	<b>1629</b>	<b>1669</b>	<b>4445</b>	<b>-3</b>

Source: State of Forest Report 2005

**TABLE 3.2.11(c) : STATE-WISE LIST OF MANGROVE AREAS**

SI No.	State/UT	mangrove Area
1	2	3
1	West Bengal	Sunderbans.
2	Orissa	Bhaitarkanika, Mahandi, Subernarekha, Devi, Dharma, MGRC, Chilka
3	Andhra Pradesh	Coringa, East Godavari, Krishna
4	Tamil Nadu	Pichavram, Muthupet, Ramnad, Pulicat, Kazhuveli
5	Andman & Nicobar	North Andamans, Nicobar
6	Kerala	Vembanad, kannur
7	Karnataka	Coondapur, Dakshin Kannada/Honnavar, Mangalore forest division, Karwar
8	Goa	Goa
9	Maharashtra	Achra-Tatnagiri, Devgarh-Vijay Dur, Veldur, Kundalika-Ravdana, Mumbara-Diva, Vikroli, Shreevardhan, Vaitarna, Vasasi-Manori, Malvan
10	Gujarat	Gulf of Kutch, Gulf of Khambat, Dumas-Ubhrat

Source : Annual Report 2005-2006, Ministry of Environment &amp; Forests

**TABLE 3.2.12 : STATE-WISE WASTE LANDS OF INDIA***(Area in Sq. Km.)*

Sl. No.	States/Uts.	Number of districts covered	Total Geog. Area of dist. Covered	Total Wasteland area in dists. Covered	% to total Geog. area
1	2	3	4	5	6
1	Andhra Pradesh	23	275068.00	51750.19	18.81
2	Arunachal Pradesh	13	83743.00	18326.25	21.88
3	Assam	23	78438.00	20019.17	25.52
4	Bihar	55	173877.00	20997.55	12.08
5	Goa	2	3702.00	613.27	16.57
6	Gujarat	25	196024.00	43021.28	21.95
7	Haryana	19	44212.00	3733.98	8.45
8	Himachal Pradesh	12	55673.00	31659.00	56.87
9	Jammu & Kashmir	14	101387.00	65444.24	64.55
10	Karnataka	27	191791.00	20839.28	10.87
11	Kerala	14	38863.00	1448.18	3.73
12	Madhya Pradesh	62	443446.00	69713.75	15.72
13	Maharashtra	32	307690.00	53489.08	17.38
14	Manipur	9	22327.00	12948.62	58.00
15	Meghalaya	7	22429.00	9904.38	44.16
16	Mizoram	3	21081.00	4071.68	19.31
17	Nagaland	7	16579.00	8404.10	50.69
18	Orissa	30	155707.00	21341.71	13.71
19	Punjab	17	50362.00	2228.40	4.42
20	Rajasthan	32	342239.00	105639.11	30.87
21	Sikkim	4	7096.00	3569.58	50.30
22	Tamilnadu	4	10486.00	1276.03	12.17
23	Tripura	29	130058.00	23013.90	17.70
24	Uttar Pradesh	83	294411.00	38772.80	13.17
25	West Bengal	18	88752.00	5718.48	6.44
26	UTs	20	10973.00	574.30	5.23
<b>Total</b>		584	3166414.00	638518.31	20.17
Un -Surveyed Area (J& K)			120849.00		
Total Geog. Area			3287263.00		

Source : Forestry Statistics in India, 2003

**TABLE 3.2.13 : STATE WISE AND CATEGORY WISE WASTE LANDS OF INDIA**

(Sq.km)								
Sl. No.	States/UTs.	Gullied/ Ravinous land	Land with/without scrub	Waterlogged/ Marshy land	Saline/ alkaline area	Shifting cultivation area	Deg. Notified forest land	Deg. Pastures/o razing land
1	2	3	4	5	6	7	8	9
1	Andhra Pradesh	692.68	20256.64	1035.02	603.26	13.80	22237.78	709.29
2	Arunachal Pradesh	0.00	3326.78	41.47	0.00	3088.08	1416.67	2134.99
3	Assam	0.00	843.72	1633.56	0.00	8391.48	3112.71	2217.85
4	Bihar	559.17	4689.93	1198.87	0.51	45.45	13066.53	164.97
5	Goa	0.00	292.83	41.02	0.00	0.00	71.99	2.47
6	Gujarat	1013.39	21786.72	2656.26	7637.34	0.00	5443.02	387.45
7	Haryana	49.50	988.42	238.30	285.63	0.00	732.52	721.65
8	Himachal Pradesh	121.89	2056.50	15.69	1.36	0.00	4589.98	4278.17
9	Jammu & Kashmir	21.25	4495.30	246.50	0.00	0.00	2491.66	267.51
10	Karnataka	301.52	9087.68	32.76	125.11	0.00	8299.41	97.46
11	Kerala	0.00	357.93	136.00	0.00	0.00	609.30	3.99
12	Madhya Pradesh	7569.11	36977.87	51.72	162.81	0.00	20437.77	302.44
13	Maharashtra	1700.37	31386.91	527.57	251.66	0.00	13430.67	1349.40
14	Manipur	0.00	1.32	324.60	0.00	12014.06	608.64	0.00
15	Meghalaya	0.00	4190.63	14.87	0.00	2086.77	3612.11	0.00
16	Mizoram	0.00	0.00	0.00	0.00	3761.23	310.45	0.00
17	Nagaland	0.00	1596.46	0.00	0.00	5224.65	1582.99	0.00
18	Orissa	185.82	8358.68	379.10	51.49	115.25	10014.07	13.43
19	Punjab	168.52	339.44	352.01	173.29	0.00	353.29	113.71
20	Rajasthan	4952.77	27152.76	289.66	2722.99	0.00	12541.89	12208.44
21	Sikkim	0.00	1073.11	0.00	0.00	0.00	1060.57	0.00
22	Tamilnadu	0.00	286.87	0.11	0.00	400.88	588.18	0.00
23	Tripura	226.12	7697.91	415.80	2479.73	0.53	9634.25	168.94
24	Uttar Pradesh	2806.52	5498.99	4981.43	5811.94	0.00	3338.32	446.36
25	West Bengal	171.90	1245.16	1931.54	131.25	0.00	777.58	384.97
26	UTs	12.83	25.74	24.60	39.01	0.00	289.97	5.43
<b>Total</b>		<b>20553.36</b>	<b>194014.30</b>	<b>16568.46</b>	<b>20477.38</b>	<b>35142.18</b>	<b>140652.32</b>	<b>25978.92</b>

Source : Forestry Statistics in India, 2003

Note : 1,20,8849 sq kms in Jammu &amp; Kashmir is not mapped and hence not considered for calculating per percentage

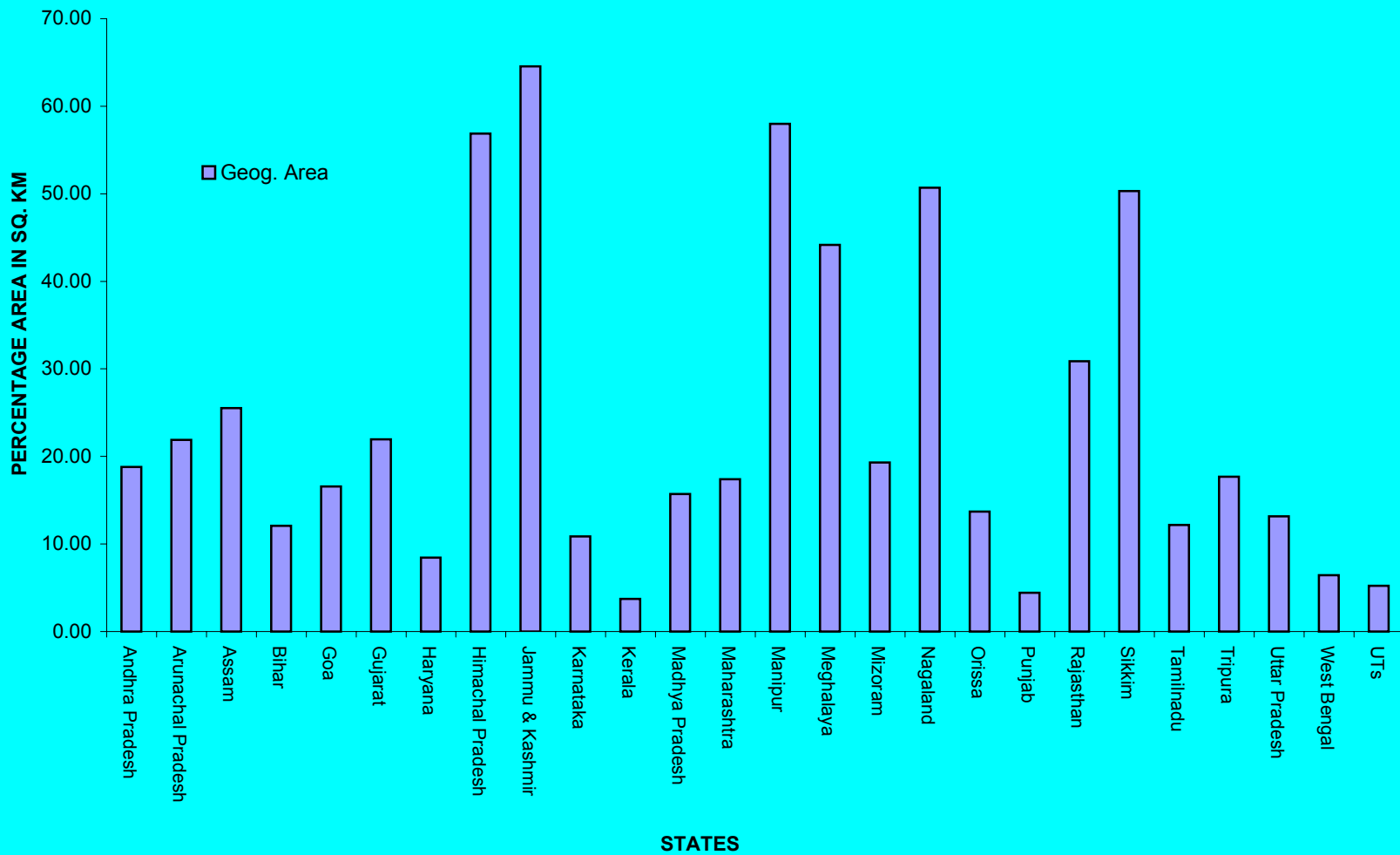
**TABLE 3.2.13 : STATE WISE AND CATEGORY WISE WASTE LANDS OF INDIA..Concl'd.**

(Sq Km)

States/UTs.	Deg. Land under plantation crop	Sands-inland/costal	Mining/Industrial wasterlands	Barren Rocky area	Steep Sloping area	Snow/Glacial area	Total Wasterland	Total Geog. Area	% to Total Geog. Area
1	10	11	12	13	14	15	16	17	18
Andhra Pradesh	52.91	464.70	98.88	5196.27	388.96	0.00	51750.19	275068.00	18.81
Arunachal Pradesh	6.07	309.43	0.30	1262.36	7.93	6732.17	18326.25	83743.00	21.88
Assam	0.00	3764.54	0.43	54.88	0.00	0.00	20019.17	78438.00	25.52
Bihar	79.80	222.08	184.23	688.91	97.10	0.00	20997.55	173877.00	12.08
Goa	32.19	0.00	110.73	58.55	3.49	0.00	613.27	3702.00	16.57
Gujarat	78.32	188.42	49.66	3293.39	487.31	0.00	43021.28	196024.00	21.95
Haryana	134.12	465.01	13.72	105.12	0.00	0.00	3733.98	44212.00	8.45
Himachal Pradesh	2457.59	105.04	85.66	3858.04	1529.67	12559.42	31659.00	55673.00	56.87
Jammu & Kashmir	640.56	869.26	0.31	32821.50	1685.42	21904.97	65444.24	101387.00	64.55
Karnataka	104.74	43.96	77.78	2627.89	40.97	0.00	20839.28	191791.00	10.87
Kerala	25.65	27.87	0.49	146.46	140.49	0.00	1448.18	38863.00	3.73
Madhya Pradesh	910.40	24.57	141.44	2950.97	184.65	0.00	69713.75	443446.00	15.72
Maharashtra	687.43	77.63	100.45	2587.42	1389.57	0.00	53489.08	307690.00	17.38
Manipur	0.00	0.00	0.00	0.00	0.00	0.00	12948.62	22327.00	58.00
Meghalaya	0.00	0.00	0.00	0.00	0.00	0.00	9904.38	22429.00	44.16
Mizoram	0.00	0.00	0.00	0.00	0.00	0.00	4071.68	21081.00	19.31
Nagaland	0.00	0.00	0.00	0.00	0.00	0.00	8404.10	16579.00	50.69
Orissa	193.93	212.49	35.45	1574.09	207.88	0.00	21341.71	155707.00	13.71
Punjab	81.58	619.67	26.89	0.00	0.00	0.00	2228.40	50362.00	4.42
Rajasthan	21.14	40639.51	128.65	4799.02	182.28	0.00	105639.11	342239.00	30.87
Sikkim	0.00	0.00	0.00	10.34	0.00	1425.56	3569.58	7096.00	50.30
Tamilnadu	0.00	0.00	0.00	0.00	0.00	0.00	1276.03	10486.00	12.17
Tripura	221.96	590.80	120.46	1155.92	301.50	0.00	23013.90	130058.00	17.70
Uttar Pradesh	50.44	470.21	29.26	1180.13	992.83	13166.37	38772.80	294411.00	13.17
West Bengal	2.93	879.13	47.34	130.46	16.24	0.00	5718.48	88752.00	6.44
UTs	46.34	47.33	0.00	83.05	0.00	0.00	574.30	10973.00	5.23
<b>Total</b>	<b>5828.10</b>	<b>50021.65</b>	<b>1252.13</b>	<b>64584.77</b>	<b>7656.29</b>	<b>55788.49</b>	<b>638518.31</b>	<b>3166414.00</b>	<b>20.17</b>

Source : Forestry Statistics in India, 2003

**CHART 3.2.13 : STATE-WISE WASTELAND AS PERCENTAGE TO THE TOTAL GEOGRAPHICAL AREA**

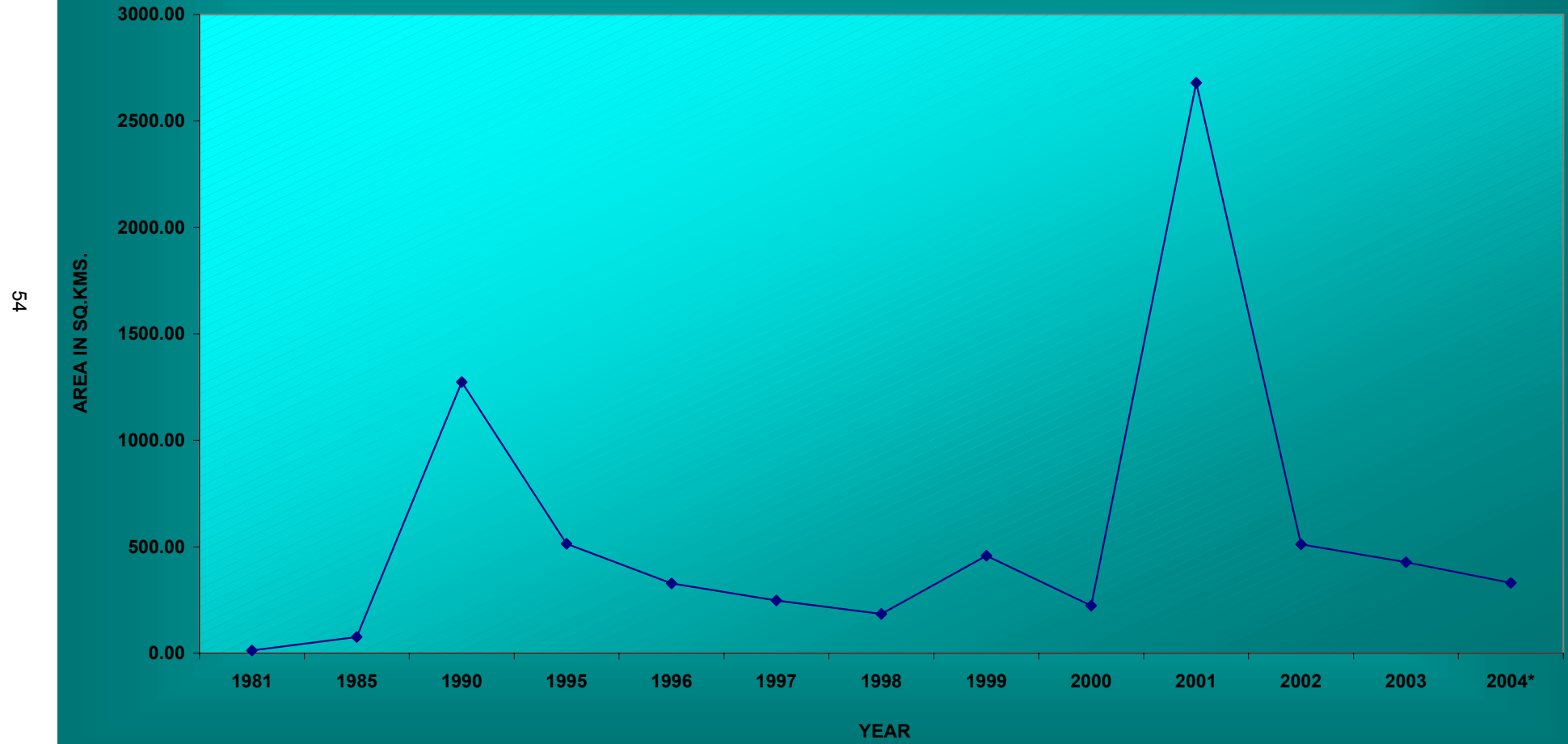


**TABLE 3.2.14 : DIVERSION OF FOREST LAND FOR NON FOREST USE  
SINCE THE ENFORCEMENT OF FOREST CONSERVATION ACT,1980***(Area in ha.)*

Sl. No.	Year	Forest Area Diverted	Cummulative Area Diverted
1	1980	Nil	Nil
2	1981	1331.70	1331.70
3	1982	3674.32	5006.02
4	1983	5100.51	10106.53
5	1984	9348.90	19455.43
6	1985	7676.83	27132.26
7	1986	9310.45	36442.71
8	1987	25925.97	62368.68
9	1988	4868.71	67237.39
10	1989	66768.09	134005.48
11	1990	127361.79	261367.27
12	1991	5065.35	266432.62
13	1992	21756.77	288189.39
14	1993	16182.51	304371.90
15	1994	59962.02	364333.92
16	1995	51428.98	41562.90
17	1996	32862.55	448625.45
18	1997	24738.43	47363.88
19	1998	18425.21	491789.09
20	1999	45784.41	537573.50
21	2000	22386.43	559959.93
22	2001	267897.61	827857.54
23	2002	51172.31	879029.85
24	2003	42729.68	921759.53
25	2004	33079.50	954839.03

Source : Forests &amp; Wildlife Statistics, India, 2004,MOEF

CHART 3.2.14: FOREST LAND DIVERSION





**TABLE: 3.2.15 : PROGRESS OF JOINT FOREST MANAGEMENT IN INDIA***(As on 01-01-2004)*

Sl. No.	State	No. of JFM Committees	Area Under JFM (in ha)	Total No. of Families involved in JFM
1	2	3	4	5
1	Andhra Pradesh	7245	1886764.00	611095
2	Arunachal Pradesh	308	80217.00	20474
3	Assam	503	79251.00	67341
4	Bihar	493	267240.94	242639
5	Chhattisgarh	6881	2846762.16	1360251
6	Goa	26	13000.00	336
7	Gujarat	1424	160525.41	149191
8	Haryana	875	56000.00	165500
9	Himachal Pradesh	835	290922.80	259069
10	Jammu & Kashmir	935	49544.00	48460
11	Jharkhand	3358	847967.93	296135
12	Karnataka	3470	232734.00	243357
13	Kerala	323	170712.00	40624
14	Madhya Pradesh	13698	5500000.00	1641000
15	Maharashtra	5322	1411215.00	921634
16	Manipur	205	93941.00	19451
17	Mizoram	249	10980.00	32241
18	Nagaland	306	22930.00	57492
19	Orissa	15985	821504.00	--
20	Punjab	287	56243.95	38022
21	Rajasthan	3667	376766.00	300295
22	Sikkim	158	600.00	3268
23	Tamil Nadu	1816	445965.00	270934
24	Tripura	234	34154.00	20239
25	Uttar Pradesh	2030	112652.93	620265
26	Uttanchal	10107	859028.00	499980
27	West Bengal	3892	604334.00	465395
<b>Total</b>		<b>84632</b>	<b>17331955.12</b>	<b>8384788</b>

Source : Ministry of Environment &amp; Forests, Annual Report 2003-2004

Participation of people in the protection and management of forests has been emphasised in the National Forest Policy, 1988. Pursuant to this policy, Government of India through its resolution dated 1st June '90 formalised the JFM Programme. The JFM is being practiced through constitution of forest protection committees. About 84,632 committees are managing a total of 17.33 million ha of forest area under JFM.

**TABLE 3.3.1 : INDIA'S MAJOR BIOGEOGRAPHIC HABITATS**

Sl. No.	Biogeographic Zone	Biotic Province	Total Area (Sq.Km)
1	2	3	4
1	Trans-Himalayan	Upper Regions	186200
2	Himalayan	North-Western	69000
		Western	72000
		Central	123000
		Eastern	83000
3	Desert	Kachchh	45000
		Thar	180000
		Ladakh (cold)	NA
4	Semi-Arid	Central India	107600
		Gujarat-Rajwara	400400
5	Western Ghats	Malabar Coast	59700
		Western Ghat Mountains	99300
6	Deccan Peninsula	Deccan South Plateau	378000
		Central Plateau	341000
		Eastern Plateau	198000
		Chhota Nagpur	217000
		Central Highlands	287000
7	Gangetic Plain	Upper Gangetic	206400
		Lower Gangetic	153000
8	North-East India	Brahmaputra Valley	65200
		North-Eastern Hills	106200
9	Islands	Andaman Islands	6397
		Nicobar Islands	1930
		Lakshadweep	180
10	Coasts	West Coast	6500
		East Coast	6500

Source : "Conserving our Biological Wealth", WWF for Nature-India (modified) and Zoological Survey of India

TABLE 3.3.2 : ESTIMATED NUMBER OF SPECIES

Sl. No.	Taxonomic Group	No. of Species		% In India
		India	World	
1	2	3	4	5
<b>I</b>	<b>PROTISTA</b>	<b>2577</b>	<b>31250</b>	<b>8.24</b>
1	Protozoa	2577	31250	8.24
<b>II</b>	<b>ANIMALIA</b>	<b>86808*</b>	<b>1196903</b>	<b>7.25</b>
1	Mesozoa	10	71	14.08
2	Porifera	486	4562	10.65
3	Cnidaria	842	9916	8.49
4	Ctenophora	12	100	12.00
5	Platyhelminthes	1622	17500	9.27
6	Nemertinea	--	600	--
7	Rotifera	330	2500	13.20
8	Gastrotricha	100	3000	3.33
9	Kinorhyncha	10	100	10.00
10	Nematoda	2850	30000	9.50
11	Nematomorpha	--	250	--
12	Acanthocephala	229	800	2862.00
13	Sipuncula	35	145	24.14
14	Mollusca	5070	66535	7.62
15	Echiura	43	127	33.86
16	Annelida	840	12700	6.61
17	Onychophora	1	100	1.00
	<b>Arthropoda</b>	<b>68389</b>	<b>987949</b>	<b>6.90</b>
1	Crustacea	2934	35534	8.26
2	Insecta	59353	867391	6.83
3	Arachnida	5818	73440	7.90
4	Pycnogonida	16	600	2.67
5	Paupoda	--	360	--
6	Chilopoda	100	3000	3.33
7	Diplopoda	162	7500	2.16
8	Symphyla	4	120	3.33
9	Merostomata	2	4	50.00
10	Phoronida	3	11	27.27
11	Bryozoa (Ectoprocta)	200	4000	5.00
12	Entoprocta	10	60	16.66
13	Brachiopoda	3	300	1.00
14	Pogonophora	--	80	--
15	Priapulida	--	8	--
16	Pentastomida	--	70	--
17	Chaetognatha	30	111	27.02
18	Tardigrada	30	514	5.83
19	Echinodermata	765	6223	12.29
20	Hemichordata	12	120	10.00
	<b>Chordata</b>	<b>4886</b>	<b>48451</b>	<b>10.07</b>
1	Protochordata (Cephalochordata +Urochordata)	119	2106	5.65
2	Pisces	2546	21723	11.72
3	Amphibia	209	5150	4.06
4	Reptilia	456	5817	7.84
5	Aves	1166	9026	12.91
6	Mammalia	390	4629	8.42
<b>Grand Total (Protista I + Animalia II)</b>		<b>89385</b>	<b>1228153</b>	<b>7.28</b>

Source : Zoological Survey of India

**TABLE 3.3.3 (a): RARE AND THREATENED SPECIES (VERTEBRATES)**

Sl. No.	Category	Approximate Number				
		Mammalia	Aves	Reptilia	Amphibia	Total
1	2	3	4	5	6	7
1	Rare	--	2	--	--	2
2	Vulnerable	28	22	4	--	54
3	Endangered	29	21	16	1	67
4	Critical*	3	8	--	--	11
5	Extinct**	1	2	--	--	3
6	Insufficiently Known	16	--	--	--	16
<b>Total</b>		<b>77</b>	<b>55</b>	<b>20</b>	<b>1</b>	<b>153</b>

Source : Zoological Survey of India.

\* **Mammal** - Brow - Antlered Deer, Yak, Hispid Hare  
**Aves** - Christmas Island Frigate Bird, Mrs. Hume's Bartailed Pheasant, Burmese Peafowl, Blacknecked Crane, Hooded Crane, Masked Finfoot, Jerdon's Courser, Forest Spotted Owlet.

\*\* **Mammal** - Cheetah.  
**Aves** - Pinkheaded Duck, Mountain Quail

A taxon is **Extinct**, when there is no reasonable doubt that the last Individual has died.

A taxon is **Critical** when it is facing an extremely high probability of extinction in the wild in the immediate future.

A taxon is **Endangered** when it is not critical but is facing a very high probability of extinction in the wild in the near future.

A taxon is **Vulnerable** when it is not critical or endangered but is facing a high probability of extinction in the wild in the medium-term future.

A taxon is **Rare** when its populations are small and at present not endangered or vulnerable but are at risk .

A taxon is **Insufficiently Known** when an evaluation has been made but the available data are inadequate to assign a category.

### 3.3.3 (b): RECENT ADDITION IN THE LIST OF THREATENED/ ENDANGERED SPECIES

As per the Gazette Notification number 1-4/95 WL dated 5<sup>th</sup> November, 2001, published in Part II Section 3, subsection (II), Extraordinary Gazette of India, the Central Government ( Ministry of Environment and Forests) has made amendments in Schedule I and Schedule IV of the Subsection (1) of section 61 of the Wild Life (Protection ) Act, 1972 and included the following species in the Schedules of Threatened and endangered species

#### 1 Schedule 1

- a) in Para II related to " Fishes" for serial number 2 and the entry relating thereto the following serial number and entries shall be substituted, namely
- "2. Shark and Ray
- (i) Anoxypristis cuspidate
  - (ii) Carcharhinus hemiodon
  - (iii) Glyphius gangeticus
  - (iv) Glyphius glyphius
  - (v) Himantura fluviatilis
  - (vi) Pristis microdon
  - (vii) Pristis zijsron
  - (viii) Rhynchobatus djiddensis
  - (ix) Urogymnus asperrimus
- (b) for Part IVB, relating to Mollusca and the entries relating there to, the following Part IVB and the entries shall be substituted, namely:-

#### "Part IV B-Mollusca

- 1 Cassis cornuta (Linnalus)
- 2 Charonia tritonis (Linnalus)
- 3 Conus milne -edwardi Jousseume
- 4 Cypraecsis rufa (Linnaeus)
- 5 Hippopus hippopus
- 6 Nautilus Pompilius (Linnaeus)
- 7 Tridacna maxima (Roeding)
- 8 Tridacna squamosa Lamarela
- 9 Tudicla Spirillus (Linnaeus)

2 In Schedule IV to the said Act, after serial number 18 and the entries relating there to, the following serial numbers and entries shall be added, namely:-

#### "19. Mollusca

- i. Cypraea limacina' Lamarck
- ii. Cypraea mappa Linnaeus
- iii. Cypraea talpa Linnaeus
- iv. Fasciolaria trapezium = Pleuroploca trapezium (Linnaeus)
- v. Harpulina arausica
- vi. Lambis chiragra Chiragra (Linnaeus)
- vii. Lambis chiragra arthitica
- viii. Lambis Crocaltia Croeata (Link)
- ix. Lambis millepeda (Linnaeus)
- x. Lambis scorpio (Linnaeus)
- xi. Lambis trunceta (Humphrey)
- xii. Plaeuna placenta Linnaeus
- xiii. Strombus plicatus sibbaldi Sowerby
- xiv. Trochus niloticus Linnaeus
- xv. Turbo marmoratus Linnaeus

Source : Zoological Survey of India.

**Table 3.3.3 (c) : Globally Threatened Animals Occurring in India by Status Category**

Groups	Threatened	Extinct	Cr	En	Vu	LRnt	NT	LRcd	DD	Total
Mamals	213	2	12	47	63	39	13	6	31	213
Birds	149	-	10	13	64	3	56	-	3	149
Reptiles	33	-	4	12	10	4		-	3	33
Amphibia	148	1	14	30	22	-	9	-	72	148
Pisces	75	-	2	5	20	14	13	-	21	75
Crustacea	12	-	-	-	9	-	-	-	3	12
Mollusca	5	-	-	2	-	-	-	3	-	5
Hymenoptera	5	-	-	-	5	-	-	-	-	5
Lepidoptera	4	-	-	-	-	3		-	1	4
Odonata	3	-	1	-	2	-	-	-	-	3
Anoplura	1	-	1	-	-	-	-	-	-	1
<b>Total</b>	<b>648</b>	<b>3</b>	<b>44</b>	<b>109</b>	<b>195</b>	<b>63</b>	<b>91</b>	<b>9</b>	<b>134</b>	<b>648</b>

Source : Ramakrishna & Alfred ,2006, Faunal Resources in India.

Cr - Critically Endangered

En - Endangered

Vn - Vulnerable

LRnt - Low risk -near threatened

NT - Near Threatened

LRcd - Low risk/conservation dependent

DD - Data deficient

**TABLE 3.3.4 : ESTIMATED NUMBER/PERCENTAGE OF ENDEMIC SPECIES IN INDIA**

Sl. No.	Taxon	Number of Species		Percentage
		Total	Endemic	
1	2	3	4	5
<b>1</b>	<b>Protozoa</b>			
I	Free living	1247	90	7.21
II	Parasitic	1330	550	41.33
<b>2</b>	<b>Mesozoa</b>	10	10	100.00
<b>3</b>	<b>Porifera</b>			
I	Freshwater	31	13	41.93
<b>4</b>	<b>Cnidaria</b>	842	10 *	--
<b>5</b>	<b>Platyhelminthes</b>	1622	1160	71.88
<b>6</b>	<b>Rotifera</b>	330	23	7.00
<b>7</b>	<b>Gastroticha</b>	100	64	64.00
<b>8</b>	<b>Kinorhyncha</b>	10	7	70.00
<b>9</b>	<b>Nematoda</b>	2850	400 *	--
<b>10</b>	<b>Acanthocephala</b>	229	203	88.64
<b>11</b>	<b>Mollusca</b>			
I	Terrestrial	1487	498	33.50
II	Freshwater	183	77	41.80
<b>12</b>	<b>Echiura</b>	43	12	28.00
<b>13</b>	<b>Annelida</b>			
I	Oligochaeta	473	368	77.80
II	Hirudinea	59	25	42.37
<b>14</b>	<b>Arthropoda</b>			
I	Crustacea	2934	501	17.07
II	Insecta	59353	20717	34.90
III	Arachnida	5818	2623	45.08
<b>15</b>	<b>Phoronida</b>	11	1	9.00
<b>16</b>	<b>Bryozoa</b>	4000	12 *	--
<b>17</b>	<b>Entoprocta</b>	10	1	10.00
<b>18</b>	<b>Chaetognatha</b>	111	3	2.70
<b>19</b>	<b>Chordata</b>			
I	Pisces	2546	223	8.75
II	Amphibia	209	128	61.24
III	Reptilia	456	214	47.00
IV	Aves	1166 **	50 **	4.29 **
V	Mammalia	390	42 **	11.28

Source : Faunal Diversity in India (1998) with updated (\*\*) figures, Zoological Survey of India.

\* : Complete data not available, hence percentage not calculated

\*\* : Rec. Zool. Survey of India, occasional paper no. 200 (2002)  
Rec. Zool. Survey of India, occasional paper no. 201 (2002)

**TABLE 3.3.5 : NATIONAL PARKS AND WILDLIFE SANCTUARIES OF INDIA***( Area in Sq. Km.)***As on 31st July 2004**

Sl. No.	State	National Parks		Wildlife Sanctuaries		Total Area
		Number	Area	Number	Area	
1	2	3	4	5	6	7
1	Andhra Pradesh	4	373.23	21	13096.23	13469.46
2	Arunachal Pradesh	2	2468.23	11	7606.37	10074.60
3	Assam	5	1977.79	16	888.22	2866.01
4	Bihar	1	335.60	11	2993.16	3328.76
5	Chhatisgarh	3	2929.50	10	3419.46	6348.96
6	Delhi	0	0.00	1	17.76	17.76
7	Goa	1	107.00	6	647.96	754.96
8	Gujarat	4	479.67	22	16602.61	17082.28
9	Haryana	2	46.98	9	287.32	334.30
10	Himachal Pradesh	2	1429.40	32	5665.92	7095.32
11	Jammu & Kashmir	4	3810.07	16	10163.67	13973.74
12	Jharkhand	1	231.67	10	1868.31	2099.98
13	Karnataka	5	2472.18	21	4231.44	6703.62
14	Kerala	3	536.52	12	1788.20	2324.72
15	Madhya Pradesh	9	3656.35	25	7199.52	10855.87
16	Maharashtra	5	955.93	36	14729.64	15685.57
17	Manipur	1	40.00	5	706.50	746.50
18	Meghalaya	2	267.48	3	34.21	301.69
19	Mizoram	2	200.00	5	775.00	975.00
20	Nagaland	1	202.02	3	20.35	222.37
21	Orissa	2	990.70	18	7961.94	8952.64
22	Punjab	0	0.00	10	316.71	316.71
23	Rajasthan	4	3859.37	24	5301.84	9161.21
24	Sikkim	1	1784.00	6	265.10	2049.10
25	Tamil Nadu	5	307.84	20	2997.57	3305.41
26	Tripura	0	0.00	4	603.08	603.08
27	Uttaranchal	6	4083.31	6	2868.00	6951.31
28	Uttar Pradesh	1	490.10	23	5185.90	5676.00
29	West Bengal	5	1692.65	15	1223.47	2916.12
30	Andaman & Nicobar Islands	9	1153.94	96	466.22	1620.16
31	Chandigarh	0	0.00	2	26.01	26.01
32	Dadra & Nagar Haveli	0	0.00	1	92.00	92.00
33	Daman & Diu	0	0.00	1	2.18	2.18
34	Lakshadweep	0	0.00	1	0.01	0.01
35	Pondicherry	0	0.00	0	0.00	0.00
<b>Total</b>		<b>90</b>	<b>36881.53</b>	<b>502</b>	<b>120051.88</b>	<b>156933.41</b>

Source: Wildlife Division of MOE&amp;F

The Wildlife (Protection) Act, 1972 provided for setting up National Parks and Sanctuaries for Wildlife. The basic idea of these National Parks and Sanctuaries is to provide natural habitats for the Wildlife. The aim is not only to protect and preserve remains of wild fauna and flora but also to augment this price-less national heritage.

In India, at present there are 502 Wildlife Sanctuaries and 90 National Parks, covering an area of 156933.41 Sq. Km.



**TABLE 3.3.6 (a) : ALL INDIA TIGER POPULATION IN TIGER RESERVES**

Sl. No.	Name of Reserve	Years							
		1972	1979	1984	1989	1993	1995	1997	2001-02 *
1	2	3	4	5	6	7	8	9	10
1	Bandipur (Karnataka)	10	39	53	50	66	74	75	82
2	Corbett(Uttaranchal)	44	84	90	91	123	128	138	137
3	Kanha(Madhya Pradesh)	43	71	109	97	100	97	114	127
4	Manas(Assam)	31	69	123	92	81	94	125	65*
5	Melghat (Maharashtra)	27	63	80	77	72	71	73	73
6	Palamu (Jharkhand)	22	37	62	55	44	47	44	32
7	Ranthombore (Rajasthan)	14	25	38	44	36	38	32	35
8	Similipal(Orissa)	17	65	71	93	95	97	98	99
9	Sunderbans (West Bengal)	60	205	264	269	251	242	263	245
10	Periyar (Kerala)	-	34	44	45	30	39	40	36
11	Sariska (Rajasthan)	-	19	26	19	24	25	24	22
12	Buxa (West Bengal)	-	-	15	33	29	31	32	31
13	Indravati (Madhya Pradesh)	-	-	38	28	18	15	15	29
14	Nagarkimasagar (Andhra Pradesh)	-	-	65	94	44	34	39	67
15	Namdhapa (Arunachal Pradesh)	-	-	43	47	47	52	57	61
16	Dudhwa (Uttar Pradesh)	-	-	-	90	94	98	104	76*
17	Kalalad (Tamil Nadu)	-	-	-	22	17	16	28	27
18	Valmiki (Bihar)	-	-	-	81	49	N.R	53	53
19	Pench (Madhya Pradesh)	-	-	-	-	39	27	29	40
20	Tadoba (Maharashtra)	-	-	-	-	34	36	42	38
21	Bandhavgarh (Madhya Pradesh)	-	-	-	-	41	46	46	56
22	Panna (Madhya Pradesh)	-	-	-	-	25	22	22	31
23	Dampha(Mizoram)	-	-	-	-	7	4	5	4
24	Pench (Maharashtra)	-	-	-	-	-	10 (1994)	-	14
25	Bhadra (Karnataka)	-	-	-	-	-	-	-	35
26	Pakhui- Nameri (Arunachal Pradesh)	-	-	-	-	-	-	-	26 Nameri
27	Bori-Satpura (Madhya Pradesh)	-	-	-	-	30	-	-	35
<b>Total</b>		<b>268</b>	<b>711</b>	<b>1121</b>	<b>1327</b>	<b>1366</b>	<b>1333</b>	<b>1498</b>	<b>1576</b>

Source: Project Tiger, Ministry of Environment &amp; Forests

\* : under compilation/vetting

**TABLE 3.3.6 (b) : POPULATION OF TIGERS IN STATES**

Sl. No.	State	1972	1979	1984	1989	1993	1997	2001-02**
1	2	3	4	5	6	7	8	9
1	Tamilnadu	33	65		95	97	62	60
2	Maharashtra	160	174	301	417	276	257	238
3	West Bengal	73	296	352	353	335	361	349
4	Karnataka	102	156	202	257	305	350	401
5	Bihar	85	110	138	157	137	103	76
6	Assam	147	300	376	376	325	458	354
7	Rajasthan	74	79	96	99	64	58	58
8	Madhya Pradesh	457	529	786	985	912	927	710
9	Uttar Pradesh	262	487	698	735	465	475	284
10	Andhra Pradesh	35	148	164	235	197	171	192
11	Mizoram	-	65	33	18	28	12	28
12	Gujarat	8	7	9	9	5	1	-
13	Goa Daman & Diu	-	-	-	2	3	6	5
14	Orissa	142	173	202	243	226	194	173
15	Kerala	60	134	89	45	57	73	71
16	Chattisgarh	-	-	-	-	-	-	227
17	Jhaarkhand	-	-	-	-	-	-	34
18	Uttaranchal	-	-	-	-	-	-	251
	<b>Total</b>	<b>1638</b>	<b>2723</b>	<b>3446</b>	<b>4026</b>	<b>3432</b>	<b>3508</b>	<b>3511</b>
19	Meghalaya	32	35	125	34	53	*	47
20	Manipur	1	10	6	31	-	*	NR
21	Tripura	7	6	5	-	-	*	NR
22	Nagaland	80	102	104	104	83	*	23
23	Arunachal Pradesh	69	139	219	135	180	*	61***
24	Sikkim	-	-	2	4	2	*	NR
25	Haryana	-	-	1	-	-	-	-
	<b>Total</b>	<b>189</b>	<b>292</b>	<b>462</b>	<b>308</b>	<b>318</b>	<b>-</b>	<b>131</b>
1	<b>Grand Total</b>	<b>1827</b>	<b>3015</b>	<b>3908</b>	<b>4334</b>	<b>3750</b>	<b>3508</b>	<b>3642</b>

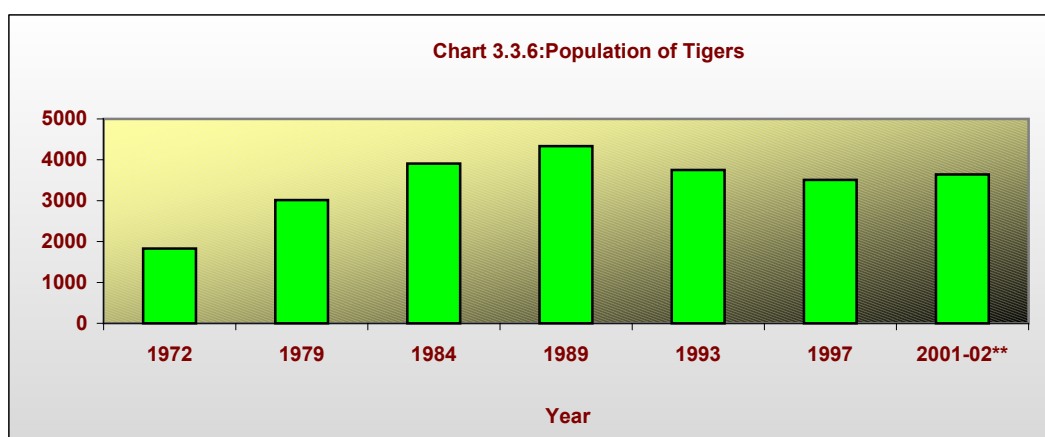
Source: Project Tiger, Ministry of Environment & Forests-2005

NR : Not Reported by States

\* : Tiger Census was not carried out in North East States in 1997.

\*\* : Under vetting

\*\*\* : only for Namdapha Tiger Reserve



**TABLE 3.3.7 : AREA OF TIGER RESERVES IN TIGER RANGE STATES**

Sl. No.	Year of Creation	Name of Tiger Reserve	State	Total Area in sq. Kms.
1	2	3	4	5
1	1973-74	Bandipur	Karnataka	866
	1999-2000	Nagarhole (extension)		642
2	1973-74	Corbett	Uttaranchal	1316
3	1973-74	Kanha	Madhya pradesh	1945
4	1973-74	Manas	Assam	2840
5	1973-74	Melghat	Maharashtra	1677
6	1973-74	Palamau	Bihar	1026
7	1973-74	Ranthambhore	Rajasthan	34
8	1973-74	Similipal	Orissa	2750
9	1973-74	Sunderbans	West Bengal	2585
10	1978-79	Periyar	Kerala	777
11	1978-79	Sariska	Rajasthan	6
12	1982-83	Buxa	West Bengal	759
13	1982-83	Indravati	Madhya Pradesh	2799
14	1982-83	Nagarjunsagar	Andhra Pradesh	3568
15	1982-83	Namdapha	Arunachal Pradesh	1985
16	1987-88	Dudhwa	Uttar Pradesh	811
	1999-2000	Katerniaghat (extension)		551
17	1988-89	Kalakad- Mundanthurai	Tamil Nadu	800
18	1989-90	Valmiki	Bihar	840
19	1992-93	Pench	Madhya Pradesh	758
20	1993-94	Tadoba-Andheri	Maharashtra	620
21	1993-94	Bandhavgarh	Madhya Pradesh	1162
22	1994-95	Panna	Madhya Pradesh	542
23	1994-95	Dampha	Mizoram	500
24	1998-99	Bhadra	Karnataka	492
25	1998-99	Pench	Maharashtra	257
26	1999-2000	Pakui	Arunachal Pradesh	862
27	1999-2000	Nameri	Assam	344
28	1999-2000	Bori, Satpura, Panchmari	Madhya pradesh	1486
<b>Total</b>				<b>37761</b>

Source : Annual Report, MOE &amp; F -2006-07

**TABLE 3.3.8: DESIGNATED ELEPHANT RESERVES IN INDIA (Revised Network-2005)**

Sl. No.	Elephant Range	Elephant Reserve	State	Date of Notification	Total Area (Sq. Km)	P.A. in ER (Sq.Km)	Elephant Population in 2005
1	2	3	4	5	6	7	8
1	Eastern India ( South West Bengal-Jharkhand Orissa)	Mayurjharna	W. Bengal	24.10.2002	414	-	96
		Singhbhum	Jharkhand	26.09.2001	4530	193	371
		Mayurbhanj	Orissa	29.09.2001	3214	1309	465
		Mahanadi*	Orissa	19.06.2002	1038	964	464
		Sambalpur*	Orissa	27.03.2002	427	427	284
		Baitarni ER#	Orissa		1755	-	108
		South Orrissa ER#	Orissa		4216	750	138
		Lemru #	Chattisgarh		450	-	-
		Badalkhol-Tamorpingla #	Chattisgarh		1048.3	1154.93	-
<b>Total</b>					<b>15594</b>	<b>3643</b>	<b>1978</b>
2	North Brahmaputra Arunachal - Assam)	Kameng	Ar. Pradesh	19.06.2002	1892	748	
		Sonitpur	Assam	7.03.2003	1420	420	612
<b>Total</b>					<b>3312</b>	<b>1168</b>	<b>612+</b>
3	South Brahmaputra (Assam- Arunachal)	Dihing-Patkai	Assam	17.04.2003	937	345	295
		Deormali*	Ar. Pradesh		1957.5	378.13	129
<b>Total</b>					<b>1837+</b>	<b>345</b>	<b>424</b>
4	Kaziranga (Assam- Nagaland)	Kaziranga-Karbi Anglong	Assam	17.04.2003	3270	1073	1940
		Dhansiri-Lungding	Assam	19.04.2003	2740	-	275
		Intanki #	Nagaland	28.02.2005	202	202	30
<b>Total</b>					<b>6212</b>	<b>1275</b>	<b>2245</b>
5	Eastern Dooars (Assam W. Bengal)	Chirang-Ripu	Assam	6.03.2003	2600	526+	658
		E. Dooars	W. Bengal	28.08.2002	978	484	300-350
<b>Total</b>					<b>3578</b>	<b>1010</b>	<b>1008</b>
6	Garro Hills (Meghalaya)	Garro Hills	Meghalaya	31.10.2001	3500	402	1047
		Khasi Hills ER^	Meghalaya			-	383
<b>Total</b>							1430
7	Nilgiri -Eastern Ghat (Karnataka- Kerala- Tamilnadu-Andhra)	Mysore	Karnataka	25.11.2002	6724	3103	4452
		Wayanad	Kerala	2.04.2002	1200	394	636
		Nilgiri	Tamilnadu	15.10.2003	4663	716	2862
		Rayala #	A. Pradesh		766	525	12
<b>Total</b>					<b>13353</b>	<b>4738</b>	<b>7962</b>
8	South Nilgiri (Kerala- Tamilnadu)	Nilambur	Kerala	2.04.2002	1419	90	281
		Coimbatore	Tamilnadu	15.10.2003	566	482	329
<b>Total</b>					<b>1985</b>	<b>572</b>	<b>610</b>
9	Western Ghat (Tamilnadu- Kerala)	Anamalai	Tamilnadu	15.10.2003	1457	300	179
		Anamudi	Kerala	2.04.2002	3728	780	10726
<b>Total</b>					<b>5185</b>	<b>1080</b>	<b>1430</b>
10	Periyar (Kerala- Tamilnadu)	Periyar	Kerala	2.04.2002	3742	1058	1100
		Srivilliputhur	Tamilnadu	15.10.2003	1249	568	638
<b>Total</b>					<b>4991</b>	<b>1626</b>	<b>1738</b>
11	Northern India (Uttaranchal)	Shivalik	Uttaranchal	28.10.2002	5405	1340	1510
		Ganga-Jamuna ER#	U.P.		744	-	NA
<b>TOTAL</b>					<b>6149</b>	<b>1340</b>	<b>1510</b>
<b>TOTAL</b>					<b>58900+</b>	<b>16400+</b>	<b>21200+</b>

Source : Project Elephant, Ministry of Environment and Forests

# Approved by Govt. of India, but not yet notified by the State Government.

\* Proposal for extension approved by GOI, but not yet notified by the state.

^ Under consideration

ER : Elephant Reserve

**TABLE 3.3.9: LOCATION OF MAJOR ZOOS**

Sl. No	Name of Zoo	Location	State
1	2	3	4
1	Mini Zoo, Haddo	Port Blair	Andaman & Nicobar Islands
2	Indira Gandhi Zoological Park	visakhapatnam	Andhra Pradesh
3	Nehru Zoological Park	Hyderabad	Andhra Pradesh
4	Sri Venkateswara Zoological Park	Tirupati	Andhra Pradesh
5	Biological Park	Itanagar	Arunachal Pradesh
6	Assam State Zoo Cum Botanical Garden	Guwahati	Assam
7	Sanjay Gandhi Biological Park	Patna	Bihar
8	Maitri Baagh Zoo	Bhilai	Chattisgarh
9	National Zoological Park	Delhi	Delhi
10	Bondla Zoo	Usgao	Goa
11	Kamla Nehru Zoological Garden	Ahemdabad	Gujarat
12	Sakkarbaug Zoo	Junagarh	Gujarat
13	Indroda Nature Park	Gandhi Nagar	Gujarat
14	Sayaji Baug Zoo	Vadodara	Gujarat
15	Sundervan Nature Discovery Centre	Jodhpur tekra	Gujarat
16	Rohtak Zoo	Rohtak	Haryana
17	Himalayan Nature Park (Kufri)	Kufri	Himachal Pradesh
18	Bhagwan Birsa Biological Park	Ranchi	Jharkhand
19	Jawaharlal Nehru Biological Park	Bokaro	Jharkhand
20	Tata Steel Zoological Park	Jamshedpur	Jharkhand
21	National Park, Bannerghatta Zoological Garden	Bannerghatta	Karnataka
22	Sri Chamarajendra Zoological Gardens	Mysore	Karnataka
23	Tiger & Lion Safari, Thyarekoppa	Shimoga	Karnataka
24	Thiruvananthapuram Zoo	Thiruvananthapuram	Kerala
25	State Museum & Zoo	Thrissur	Kerala
26	Gandhi Zoological Park	Gwalior	Madhya Pradesh
27	Van Vihar National Park	Bhopal	Madhya Pradesh
28	Kamla Nehru Prani Sanghralay Zoo	Indore	Madhya Pradesh
29	Rajiv Gandhi Zoological Park And Wildlife Research Centre	Pune	Maharashtra
30	Veer mata Jijabai Bhosale Udyan & Zoo	Mumbai	Maharashtra
31	Aurangabad Municipal Zoo	Aurangabad	Maharashtra
32	Mahatma Gandhi Rashtriya Udyan Zoo	Solapur	Maharashtra
33	Nisargakavi Bahlnabai Choudhary Pranisansangahralay	Pune	Maharashtra
34	Manipur Zoological Garden	Imphal	Manipur
35	Lady Hydari Park Animal	Shillong	Meghalaya
36	Nandankanan Biological Park	Bhubaneswar	Orissa
37	Indira Gandhi Park Zoo & Deer Park	Rourkela	Orissa
38	Mahendra Chaudhury Zoological Park	Chhatbir	Punjab
39	Jaipur Zoo	Jaipur	Rajasthan
40	Bikaner Zoo	Bikaner	Rajasthan
41	Jodhpur Zoo	Jodhpur	Rajasthan

**TABLE 3.3.9: LOCATION OF MAJOR ZOOS- Concl'd.**

<b>Sl. No</b>	<b>Name of Zoo</b>	<b>Location</b>	<b>State</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
42	Udaipur Zoo	Udaipur	Rajasthan
43	Arigna Anna Zoological Park	Vandalur	Tamil Nadu
44	Madras Crocodile Bank Trust/Centre For Herpetology	Mahabalipuram	Tamil Nadu
45	Chennai Snake Park Trust	Guindy	Tamil Nadu
46	Children's Corner	Guindy	Tamil Nadu
47	V.O.C. Park Mini Zoo	Coimbatore	Tamil Nadu
48	Sepahijala Zoological Park	Sepahijala	Tripura
49	Kanpur Zoological Park	Kanpur	Uttar Pradesh
50	Lucknow Prani Udyan	Lucknow	Uttar Pradesh
51	Pt Govind Ballabh Pant High Altitude Zoo	Nainital	Uttaranchal
52	Alipore Zoological Garden	Calcutta	West Bengal
53	Calcutta Snake Park	Badu	West Bengal
54	Marble Palace Zoo	Calcutta	West Bengal
55	Padmaja Naidu Himalayan Zoological Park	Darjeeling	West Bengal

Source : Central Zoo Authority, Ministry of Environment & Forests

**TABLE 3.3.10 : INDIA'S LIVESTOCK POPULATION***( Thousand)*

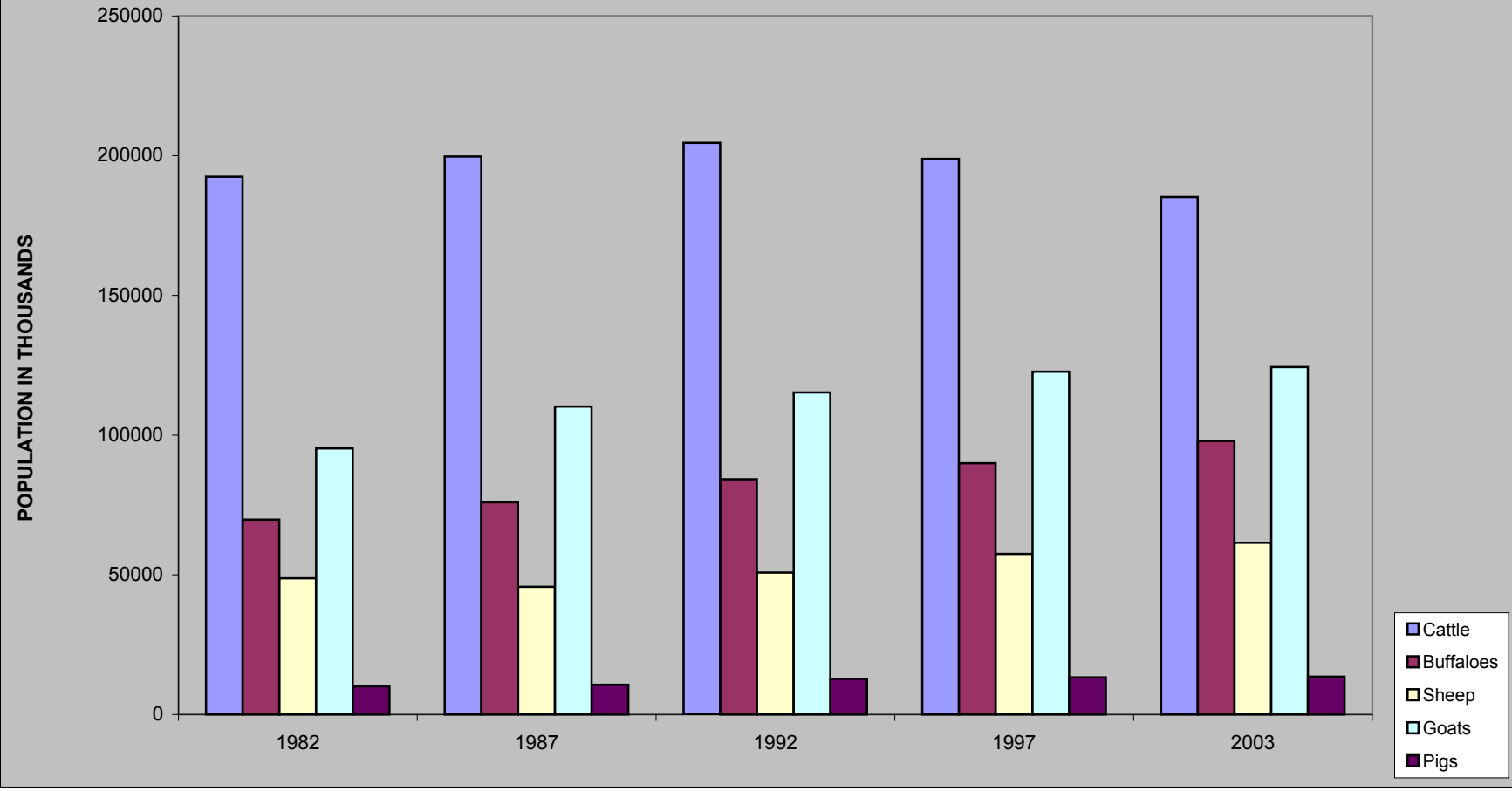
Sl. No.	Livestock	Number of Animals					
		1977	1982	1987	1992	1997	2003
1	2	3	4	5	6	7	7
1	Cattle	180140	192453	199695	204584	198882	185181
2	Buffaloes	62019	69783	75967	84206	89918	97922
3	Sheep	40907	48765	45703	50783	57494	61469
4	Goats	75620	95255	110207	115279	122721	124358
5	Horses & Ponnies	916	900	797	817	826	751
6	Pigs	7647	10071	10626	12788	13291	13519
7	Mules	89	131	167	193	220	176
8	Donkeys	978	1024	958	967	881	650
9	Camels	1068	1078	1001	1031	911	632
<b>II Other Livestock</b>							
1	Yaks	132	128	36	58	59	65
2	Mithuns	129	154	129	154	177	278
<b>Total</b>		<b>369645</b>	<b>419742</b>	<b>445286</b>	<b>470860</b>	<b>485379</b>	<b>485002</b>

Source : Live Stock Census, Ministry of Agriculture

The livestock population in the country increased from 292 million in 1951 to the current estimate of 485 million. Grazing by Livestock puts pressure on grasslands and forests. Because of excessive grazing, natural regeneration is either absent or inadequate in 52.8% of the forests in the country.

An analysis of forests vis-a-vis livestock indicates continued free access to the forest area which has resulted in high rates of growth of livestock population causing land degradation and arresting the development of markets for forage crops. Overgrazing impedes regeneration, retards growth of vegetation, and leads to extinction of good palatable grasses which are replaced by less palatable and inferior grasses. Extensive areas have been invaded by bushes which are not browsed, excessive trampling makes the soil compact and impervious and prevents circulation of air, water, thus exposing the soil to erosion by wind and water.

CHART 3.3.10 : INDIA'S LIVESTOCK POPULATION





**TABLE 3.3.11: LIVESTOCK POPULATION AS PER 2003 CENSUS**

Sr. No.	States/UTs	Cattle			Buffalos	Sheep	Goats	Pigs	Horses and ponies	Mules	Donkeys	Camel	Yaks	Mithun	Total Live-stock
		Cross bred	Indigenous	Total											
1	Andhra Pradesh	1107	8193	9300	10630	21376	6277	570	9	-	33	-	0	0	38895
2	Arunachal Pradesh	13	445	458	11	19	231	330	7	0	0	0	9	192	799
3	Assam	440	7999	8440	678	170	2987	1543	12	0	0	0	0	0	5390
4	Bihar*	1274	9455	10729	5743	382	9490	672	117	4	23	1	0	0	16432
5	Chhatisgarh	253	8629	8882	1598	121	2336	552	4	-	-	-	0	0	4610
6	Goa	12	63	76	37	-	11	87	-	0	-	0	0	0	136
7	Gujarat	639	6785	7424	7140	2062	4541	351	18	1	65	53	0	0	14231
8	Haryana	573	967	1540	6035	633	460	120	25	14	8	50	0	0	7345
9	Himachal Pradesh	677	1559	2236	774	926	1125	3	18	24	9	-	2	0	2881
10	Jammu & Kashmir	1320	1764	3084	1039	3411	2055	2	172	40	24	2	47	24	6816
11	Jharkhand	145	7513	7659	1343	680	5031	1108	5	-	-	-	0	0	8167
12	Karnataka	1602	7936	9539	3991	7256	4484	312	14	-	25	-	0	0	16082
13	Kerala	1735	387	2122	65	4	1213	76	-	-	-	0	0	0	1358
14	Madhya Pradesh	317	18595	18913	7575	546	8142	358	32	4	39	8	0	0	16704
15	Maharashtra	2776	13527	16303	6145	3094	10684	439	40	1	57	-	0	0	20460
16	Manipur	69	349	418	77	6	33	415	2	0	0	0	0	20	553
17	Meghalaya	23	744	767	18	18	327	419	2	0	0	0	0	0	785
18	Mizoram	9	27	36	6	1	17	218	2	-	0	0	0	2	245
19	Nagaland	243	208	451	34	4	175	644	1	-	0	0	0	40	898
20	Orissa	1063	12840	13903	1394	1620	5803	662	-	-	9	-	0	0	9489
21	Punjab	1531	508	2039	5995	220	278	29	29	9	5	3	0	0	6568
22	Rajasthan	464	10390	10854	10414	10054	16809	338	25	3	143	498	-	0	38284
23	Sikkim	80	79	159	2	6	124	38	2	0	0	0	7	0	178
24	Tamilnadu	5140	4001	9141	1658	5593	8177	321	25	0	26	-	0	0	15800
25	Tripura	57	702	759	14	3	472	209	0	0	0	0	0	0	698
26	Uttar Pradesh	1634	16917	18551	22914	1437	12941	2284	154	52	182	16	0	0	39980
27	Uttaranchal	228	1961	2188	1228	296	1158	33	17	22	1	0	0	0	2755
28	West Bengal	1119	17794	18913	1086	1525	18774	1301	18	-	-	0	0	0	22704
29	A& Nicobar	13	51	64	16	0	64	52	0	0	-	0	0	0	132
30	Chandigarh	5	1	6	23	-	1	-	-	-	-	-	0	0	24
31	D & Nagar Haveli	1	49	50	4	-	21	3	-	0	0	-	0	0	28
32	Daman & Diu	0	4	4	1	-	4	-	-	0	0	-	0	0	5
33	Delhi	58	34	92	231	3	17	28	1	1	1	-	0	0	282
34	Lakshadweep	2	2	4	0	0	47	0	0	0	0	0	0	0	47
35	Pondicherry	63	16	78	4	3	48	1	-	0	-	0	0	0	56
	All India	24686	160495	185181	97922	61469	124358	13519	751	176	650	632	65	278	485002

Note: \*- Data from 2 districts are yet to be received from State Government.

-' denotes less than 500.

Source: Department of Animal Husbandary and dairying

**TABLE 3.3.12 : FISH PRODUCTION**

(Lakh tonne)

Sl No.	Year	Marine	Inland	Total
1	2	3	4	5
1	1950-51	5.34	2.18	7.52
2	1960-61	8.80	2.80	11.60
3	1970-71	10.86	6.70	17.56
4	1980-81	15.55	8.87	24.42
5	1981-82	14.45	9.99	24.44
6	1982-83	14.27	9.40	23.67
7	1983-84	15.19	9.87	25.06
8	1984-85	16.98	11.03	28.01
9	1985-86	17.16	11.60	28.76
10	1986-87	17.13	12.29	29.42
11	1987-88	16.58	13.01	29.59
12	1988-89	18.17	13.35	31.52
13	1989-90	22.75	14.02	36.77
14	1990-91	23.00	15.36	38.36
15	1991-92	24.47	17.10	41.57
16	1992-93	25.76	17.89	43.65
17	1993-94	26.49	19.95	46.44
18	1994-95	26.92	20.97	47.89
19	1995-96	27.07	22.42	49.49
20	1996-97	29.67	23.81	53.48
21	1997-98	29.50	24.38	53.88
22	1998-99	26.96	26.02	52.98
23	1999-00	28.52	28.23	56.75
24	2000-01	28.11	28.45	56.56
25	2001-02	28.30	31.26	59.56
26	2002-03	29.90	32.10	62.00
27	2003-04	29.41	34.58	63.99
28	2004-05*	27.79	35.25	63.05
29	2005-06	28.16	37.56	65.72

Source : Department of Animal Husbandry and Dairying, Ministry of Agriculture

\*: Revised

**TABLE 3.3.13 : MARINE FISHERY RESOURCES OF INDIA**

Sl. No.	State/Union Territory	Continental Shelf ('000 Sq Kms.)	Number of Landing Centres	Number of Fishing Villages	App. Length of Coast Line (Kms.)
1	Andhra Pradesh	33	508	508	974
2	Goa	10	88	72	104
3	Gujarat	184	286	851	1600
4	Karnataka	27	29	221	300
5	Kerala	40	226	222	590
6	Maharashtra	112	184	395	720
7	Orissa	26	63	329	480
8	Tamil Nadu	41	362	446	1076
9	West Bengal	17	65	652	158
10	Andaman & Nicobar Islands	35	57	45	1912
11	Daman & Diu	-	7	31	27
12	Lakshadweep	4	11	10	132
13	Pondicherry	1	28	45	45
<b>TOTAL</b>		<b>530</b>	<b>1914</b>	<b>3827</b>	<b>8118</b>

Source: Department of Animal Husbandry and Dairying, Ministry of Agriculture

**TABLE 3.3.14 : STATE-WISE FISH PRODUCTION**

(Tonnes)

Sl. No.	States/UT's	2003-2004			2004-2005			2005-2006		
		Marine	Inland	Total	Marine	Inland	Total	Marine	Inland	Total
1	2	6	7	8	9	10	11	12	13	14
1	Andhra Pradesh	263930	680710	944640	210733	642321	853054	21884	67225	89109
2	Arunachal Pradesh	0	2650	2650	0	2704	2704	0	275	275
3	Assam	0	181000	181000	0	186314	186314	0	18801	18801
4	Bihar	0	266490	266490	0	267510	267510	0	27953	27953
5	Goa	83760	3600	87360	94813	4231	99044	10091	404	10495
6	Gujarat	609140	45480	654620	584779	50426	635205	66388	6993	73381
7	Haryana	0	39130	39130	0	42050	42050	0	4820	4820
8	Himachal Pradesh	0	6530	6530	0	6901	6901	0	730	730
9	Jammu & Kashmir	0	19750	19750	0	19100	19100	0	1915	1915
10	Karnataka	187000	70000	257000	171227	80000	251227	17697	12060	29757
11	Kerala	608520	76180	684700	601863	76451	678314	55891	7798	63689
12	Madhya Pradesh	0	50820	50820	0	62060	62060	0	6108	6108
13	Maharashtra	420010	125120	545130	417769	130250	548019	44534	13520	58054
14	Manipur	0	17600	17600	0	17800	17800	0	1822	1822
15	Meghalaya	0	5150	5150	0	5638	5638	0	412	412
16	Mizoram	0	3380	3380	0	3680	3680	0	375	375
17	Nagaland	0	5560	5560	0	4900	4900	0	550	550
18	Orissa	116880	190020	306900	121928	193657	315585	12221	20324	32545
19	Punjab	0	83650	83650	0	77700	77700	0	8564	8564
20	Rajasthan	0	14300	14300	0	16391	16391	0	1850	1850
21	Sikkim	0	140	140	0	140	140	0	15	15
22	Tamil Nadu	373000	101140	474140	307693	151734	459427	30799	15504	46303
23	Tripura	0	17980	17980	0	19838	19838	0	2387	2387
24	Uttar Pradesh	0	267000	267000	0	277074	277074	0	28958	28958
25	West Bengal	181600	988000	1169600	179500	1035500	1215000	16000	109000	125000
26	A & N Islands	31060	90	31150	32600	83	32683	1205	5	1210
27	Chandigarh	0	80	80	0	84	84	0	9	9
28	Dadar & Nagar Haveli	0	50	50	0	48	48	0	5	5
29	Daman & Diu	13770	0	13770	12506	0	12506	1772	7	1779
30	Delhi	0	2100	2100	0	1410	1410	0	70	70
31	Lakshadweep	10030	0	10030	11964	0	11964	1196	0	1196
32	Pondicherry	42800	5200	48000	31500	5250	36750	1927	218	2145
33	Chattisgarh	0	111050	111050	0	120072	120072	0	13175	13175
34	Uttanchal	0	2560	2560	0	2566	2566	0	279	279
35	Jharkhand	0	75380	75380	0	22000	22000	0	3427	3427
<b>Total</b>		<b>2941500</b>	<b>3457890</b>	<b>6399390</b>	<b>2778875</b>	<b>3525883</b>	<b>6304758</b>	<b>281605</b>	<b>375558</b>	<b>657163</b>

Source : Department of Animal Husbandary and Dairying, Ministry of Agriculture

**TABLE 3.3.15 : INLAND FISHERY WATER RESOURCES OF INDIA**

SI. No.	State/UTs	Rivers & Canals (Kms.)	Reservoirs (Lakh Ha)	Tanks & Ponds (Lakh Ha)	Floodplain Lakes & Derelict Water (Lakh Ha)	Brackish Water (Lakh Ha)
1	2	3	4	5	6	7
1	Andhra Pradesh	11,514	2.34	5.17	-	0.60
2	Arunachal Pradesh	2,000	-	2.76	0.42	-
3	Assam	4,820	0.02	0.23	1.10	-
4	Bihar	3,200	0.60	0.95	0.50	-
<b>5</b>	<b>Chhattisgarh</b>	<b>3,573</b>	<b>0.84</b>	<b>0.63</b>	-	<b>1.47</b>
6	Goa	250	0.03	0.03	-	Neg
7	Gujarat	3,865	2.43	0.71	0.12	1.00
8	Haryana	5,000	0.09	0.10	0.10	-
9	Himachal Pradesh	3,000	0.42	0.01	-	-
10	Jammu & Kashmir	27,781	0.07	0.17	0.06	-
<b>11</b>	<b>Jharkhand</b>	<b>4,200</b>	<b>0.94</b>	<b>0.29</b>	-	-
12	Karnataka	9,000	4.40	2.90	-	0.10
13	Kerala	3,092	0.30	0.30	2.43	2.40
14	Madhya Pradesh	17,088	2.27	0.60	-	-
15	Maharashtra	16,000	2.79	0.59	-	0.10
16	Manipur	3,360	0.01	0.05	0.04	-
17	Meghalaya	5,600	0.08	0.02	Neg	-
18	Mizoram	1,395	-	0.02	-	-
19	Nagaland	1,600	0.17	0.50	Neg	-
20	Orissa	4,500	2.56	1.14	1.80	4.30
21	Punjab	15,270	Neg	0.07	-	-
22	Rajasthan	5,290	1.20	1.80	-	-
23	Sikkim	900	-	-	0.03	-
24	Tamil Nadu	7,420	5.70	0.56	0.07	0.60
25	Tripura	1,200	0.05	0.13	-	-
26	Uttar Pradesh	28,500	1.38	1.61	1.33	-
<b>27</b>	<b>Uttaranchal</b>	<b>2,686</b>	<b>0.20</b>	<b>0.01</b>	<b>0.00</b>	-
28	West Bengal	2,526	0.17	2.76	0.42	2.10
29	Andaman & Nicobar Islands	115	0.01	0.03	-	1.20
30	Chandigarh	2	-	Neg	Neg	-
31	Dadra & Nagar Haveli	54	0.05	-	-	-
32	Daman & Diu	12	-	Neg	-	Neg
33	Delhi	150	0.04	-	-	-
34	Lakshadweep	-	-	-	-	-
35	Pondicherry	247	-	Neg	0.01	Neg
<b>Total</b>		<b>195,210</b>	<b>29.07</b>	<b>24.14</b>	<b>7.98</b>	<b>12.40</b>

Source: Annual Report 2005-06, Department of Animal Husbandry and Dairying, Ministry of Agriculture  
Neg - Negligible

**TABLE 3.3.16: INCIDENCE OF LIVESTOCK AND POULTRY DISEASES IN INDIA - 2006**

Sl. No.	Disease Name	Species	Number of		
			Outbreak	Attack	Death
1	Foot and mouth disease	Bovine	1623	49469	280
		Buffalo	5	10244	59
		Ovine/Caprine	15	5345	88
		Swine	3	15	1
		<b>Total</b>	<b>1646</b>	<b>65073</b>	<b>428</b>
2	Hamorrhagic septicaemia	Bovine	405	2633	1056
		Ovine/Caprine	52	1069	161
		Buffalo	313	1441	766
		<b>Total</b>	<b>770</b>	<b>5143</b>	<b>1983</b>
3	Black quarter	Bovine	527	2204	1029
		Ovine/Caprine	3	8	4
		Buffalo	4	49	29
		<b>Total</b>	<b>534</b>	<b>2261</b>	<b>1062</b>
4	Anthrax	Bovine	43	202	146
		Ovine/Caprine	70	408	301
		Buffalo	0	6	6
		<b>Total</b>	<b>113</b>	<b>616</b>	<b>453</b>
5	Fascioliasis	Bovine	65	527559	11
		Ovine/Caprine	1	50	11
		Buffalo	0	49	0
		Swine	0	10	0
		<b>Total</b>	<b>66</b>	<b>527668</b>	<b>22</b>
6	Enterotoxaemia	Ovine/Caprine	461	3974	1932
7	Sheep pox and goat pox	Ovine/Caprine	1389	19935	5357
8	Cow Pox	Bovine	1	10	0
9	Buffalo Pox	Buffalo	17	181	0
10	Blue Tongue	Ovi/Cap	154	4951	651
11	CCPP	Ovi/Cap	1	45	19
12	Amphistomatosis	Bovine	7	35	19
		Caprine	5	340	35
		<b>Total</b>	<b>12</b>	<b>375</b>	<b>54</b>
		Swine	40	4519	2327
14	Coccidiosis	Bovine	7	137	0
13	Swine Fever	Avian	327	23564	11763
		Swine	1	62	0
		<b>Total</b>	<b>335</b>	<b>23763</b>	<b>11763</b>
15	Ranikhet (New Castle) Disease	Avian	391	36416	10120
16	Fowl Pox	Avian	44	1566	388
17	Fowl cholera	Avian	4	284	152
18	Marek's Disease	Avian	6	925	925
19	I.B.D.	Avian	260	20198	12117
20	Duck Plague	Avian	34	1177	546
21	Salmonellosis	Avian	7	599	180
22	Chronic Respiratory Disease	Avian	122	21778	20369
23	Canine Distemper	Canine	34	825	29
24	Rabies	Bovine	16	42	42
		Canine	1	1	1
		<b>Total</b>	<b>17</b>	<b>43</b>	<b>43</b>

Sl. No.	Disease Name	Species	Number of		
			Outbreak	Attack	Death
25	Babesiosis	Bovine	26	1233	6
26	Mastitis	Bovine	34	11889	0
		Caprine	1	18	0
		Total	35	11907	0
27	Trypanosomiasis	Bovine	19	255	2
		Buffalo	5	61	7
		Camel	2	5	0
		Total	26	321	9
28	Mange	Swine	292	4766	0
		Canine	244	2647	0
		Total	536	7413	0
29	Peste Des Petits Ruminants(PPR)	Ovine/Caprine	577	28075	7059
30	Anaplasmosis	Bovine	14	73	1
31	Brucellosis	Ovine/Caprine	6	551	6
32	Coryza	Avian	2	500	13
33	Highly Pathogenic Avian Influenza (HPAI)	Avian	2	-	1043834*
34	Glander Disease	Equine	2	23#	23+
<b>GRAND TOTAL</b>			<b>7684</b>	<b>792398 \$</b>	<b>78014**</b>

Source: Department of Animal Husbandry and Dairying, Ministry of Agriculture

\* Figure pertains to number of poultry destroyed.

# 1702 samples tested out of which 23 found positive and destroyed

+ Figure pertains to number of animals destroyed

\$ Total does not include animals attacked by Glander disease

\*\*

The total does not include poultry destroyed due to HPAI and equine destroyed due to Glander disease.