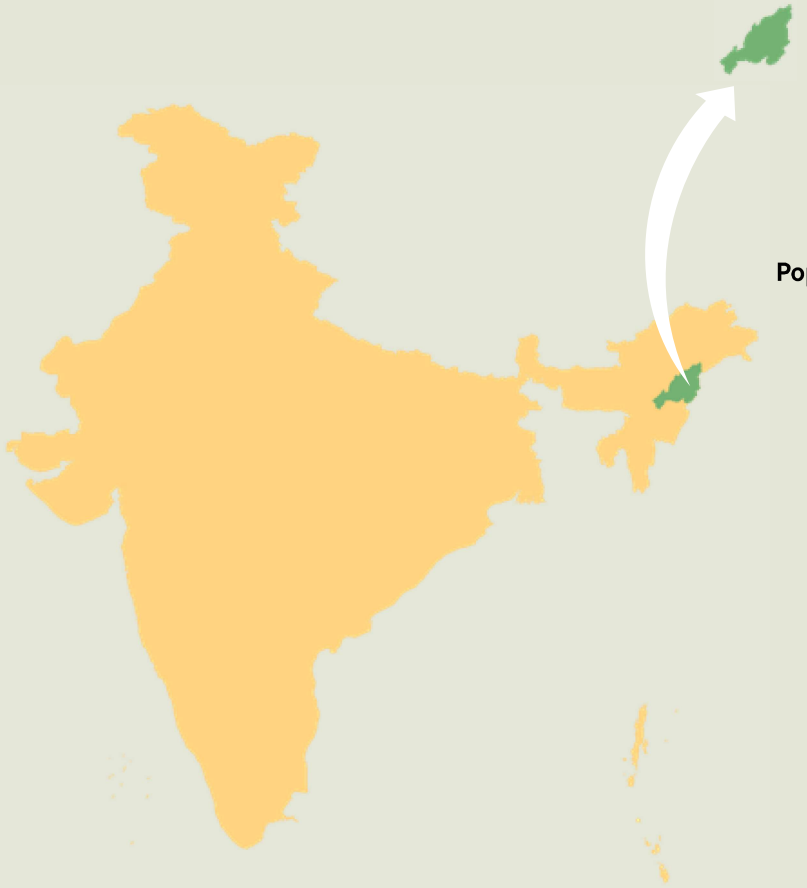
10.19 NAGALAND



Geographical Area
16,579 km^2

Geographical Coordinates
Latitude 25°10' N to 27°4' N
Longitude 93°15' E to 95°6' E

Population (as per Census 2011)
1.98 million
Urban 0.57 million (28.86 %)
Rural 1.41 million (71.14 %)
Tribal 1.71 million (86.48 %)

Average Population Density
119 per km^2

Livestock Population
(as per 19th Livestock Census)
0.91 million

No. of Districts
11

No. of Hill Districts
11

No. of Tribal Districts
11

Table 10.19.1 Land Use Pattern

Land Use Types	Area (in '000 ha)	Percentage
Geographical Area	1,658	
Reporting area for land utilization	1,656.74	100.00
Forests	862.93	52.08
Not available for land cultivation	121.54	7.34
Permanent pastures and other grazing lands	0.00	0.00
Land under misc. tree crops and groves	69.03	4.17
Culturable wasteland	60.00	3.62
Fallow land other than current fallows	186.44	11.25
Current fallows	91.95	5.55
Net area sown	264.85	15.99

Source: Land Use Statistics, Ministry of Agriculture and Farmer's Welfare, GOI, (2021-22).

10.19.1 Forest Cover

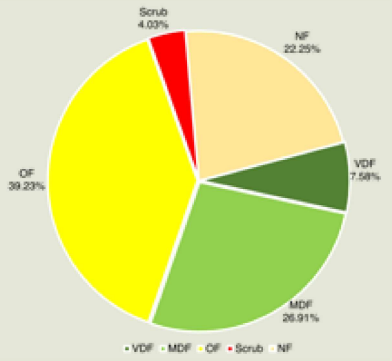


Figure 10.19.1 Forest Cover of Nagaland

Table 10.19.2 Forest Cover of Nagaland

(km^2)

Class	Area	% of Calculated Area by SoI
VDF	1,256.38	7.58
MDF	4,461.81	26.91
OF	6,504.28	39.23
Total	**12,222.47**	**73.72**
Scrub	667.27	4.03

Table 10.19.3 District- wise Forest Cover in Nagaland

(km^2)

District	Calculated Area by SoI	2023 Assessment				% of Calculated Area by SoI	Change w.r.t. 2021 Raster based*	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Dimapur[H]	927	24.70	116.04	323.13	463.87	50.04	-3.48	7.49
Kiphire[H]	1,130	139.29	268.29	404.31	811.89	71.85	-0.54	65.20
Kohima[H]	1,463	119.25	345.10	625.54	1,089.89	74.50	-4.15	42.47
Longleng[H]	562	15.73	125.76	243.93	385.42	68.58	5.26	22.76
Mokokchung[H]	1,615	2.32	546.66	791.87	1,340.85	83.02	14.88	36.72
Mon[H]	1,786	96.35	523.69	735.76	1,355.80	75.91	-18.30	99.90
Peren[H]	1,651	148.40	649.11	702.29	1,499.80	90.84	-8.48	74.95
Phek[H]	2,026	265.57	549.16	677.58	1,492.31	73.66	0.88	62.08
Tuensang[H]	2,536	356.80	433.80	568.81	1,359.41	53.60	-14.28	108.56
Wokha[H]	1,628	0.93	461.60	831.04	1,293.57	79.46	-7.99	59.00
Zunheboto[H]	1,255	87.04	442.60	600.02	1,129.66	90.01	-15.69	88.14
Grand Total	**16,579**	**1,256.38**	**4,461.81**	**6,504.28**	**12,222.47**	**73.72**	**-51.89**	**667.27**

**Area figure calculated without normalization factor.*

10.19.2 Forest Cover Inside and Outside Recorded Forest Area (or Green Wash)

The Forest Cover inside and outside Recorded Forest Area (RFA) has been analysed in different categories and presented in table given below.

Table 10.19.4 Forest Cover Inside and Outside Recorded Forest Area (or Green Wash) in Nagaland

(km2)

Forest Cover Inside the Recorded Forest Area (or Green Wash)				Forest Cover Outside the Recorded Forest Area (or Green Wash)			
VDF	MDF	OF	Total	VDF	MDF	OF	Total
1,156.13	3,168.30	4,195.60	**8,520.03**	100.25	1,293.51	2,308.68	**3,702.44**
13.57%	37.19%	49.24%		2.71%	34.94%	62.35%	

**In case of Nagaland, Green Wash boundaries have been used.*

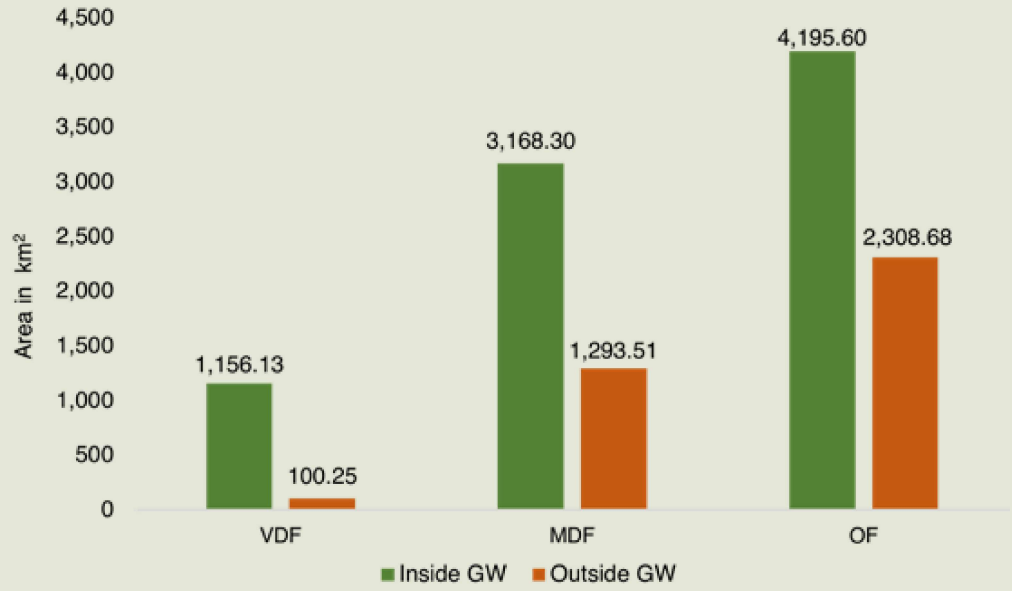


Figure 10.19.2 Forest Cover Inside and Outside of Green Wash in Nagaland

Table 10.19.5 Forest Cover Change Matrix Inside RFA/GW for Nagaland between 2021 Raster based and 2023 Assessments

(km²)

Class	2023 Assessment inside RFA/GW					Total ISFR 2021 inside RFA / GW Raster based*
	VDF	MDF	OF	Scrub	NF	
VDF	1,150.48	0.30	0.03	0.00	8.20	1,159.01
MDF	5.53	3,044.31	8.71	2.12	112.06	3,172.73
OF	0.12	121.72	3,812.89	22.50	261.98	4,219.21
Scrub	0.00	0.19	198.89	185.11	77.83	462.02
NF	0.00	1.78	175.08	127.65	1,293.51	1,598.02
Total ISFR 2023 inside RFA /GW	**1,156.13**	**3,168.30**	**4,195.60**	**337.38**	**1,753.58**	**10,610.99**
Net Change	-2.88	-4.43	-23.61	-124.64	155.56	

**Area figure calculated without normalization factor.*

Table 10.19.6 Forest Cover Change Matrix Outside RFA/GW for Nagaland between 2021 Raster based and 2023 Assessments.

(km²)

Class	2023 Assessment outside RFA/GW					Total ISFR 2021 outside RFA / GW Raster based*
	VDF	MDF	OF	Scrub	NF	
VDF	99.16	0.00	0.00	0.00	3.08	102.24
MDF	1.09	1,221.95	6.57	0.27	82.85	1,312.73
OF	0.00	70.10	1,964.53	17.02	256.79	2,308.44
Scrub	0.00	0.08	168.53	102.17	100.62	371.40
NF	0.00	1.38	169.05	210.43	1,492.34	1,873.20
Total ISFR 2023 outside RFA/GW	**100.25**	**1,293.51**	**2,308.68**	**329.89**	**1,935.68**	**5,968.01**
Net Change	-1.99	-19.22	0.24	-41.51	62.48	

**Area figure calculated without normalization factor.*

Table 10.19.7 Altitude-wise Forest Cover in Nagaland

(km²)

Altitude Zone (m)	Calculated Area by SoI	VDF	MDF	OF	Total	Scrub
0-500	4,047	0.00	1,160.30	1,990.05	3,150.35	66.10
500-1000	5,017	21.91	1,342.76	2,247.37	3,612.04	253.38
1000-2000	6,470	596.57	1,734.72	2,143.43	4,474.72	339.24
2000-3000	1,027	627.86	217.82	121.95	967.63	8.41
3000-4000	18	10.04	6.21	1.48	17.73	0.14
Total	**16,579**	**1,256.38**	**4,461.81**	**6,504.28**	**12,222.47**	**667.27**

(based on SRTM, Digital Elevation Model, 30 m, 2016).

Table 10.19.8 Forest Cover in different slope classes in Nagaland

(km²)

Slope (in degrees)	Calculated Area by SoI	VDF	MDF	OF	Total	Scrub
0-5	1,710	22.93	318.44	655.36	996.73	37.52
5-10	2,006	77.43	509.84	905.37	1,492.64	74.64
10-15	2,805	152.59	724.39	1,205.53	2,082.51	121.67
15-20	3,097	215.99	830.26	1,261.38	2,307.63	139.33
20-25	2,809	242.54	785.39	1,076.16	2,104.09	126.73
25-30	2,113	220.30	621.73	757.72	1,599.75	93.18
>30	2,039	324.60	671.76	642.76	1,639.12	74.20
Total	**16,579**	**1,256.38**	**4,461.81**	**6,504.28**	**12,222.47**	**667.27**

(based on SRTM, Digital Elevation Model, 30 m, 2016).

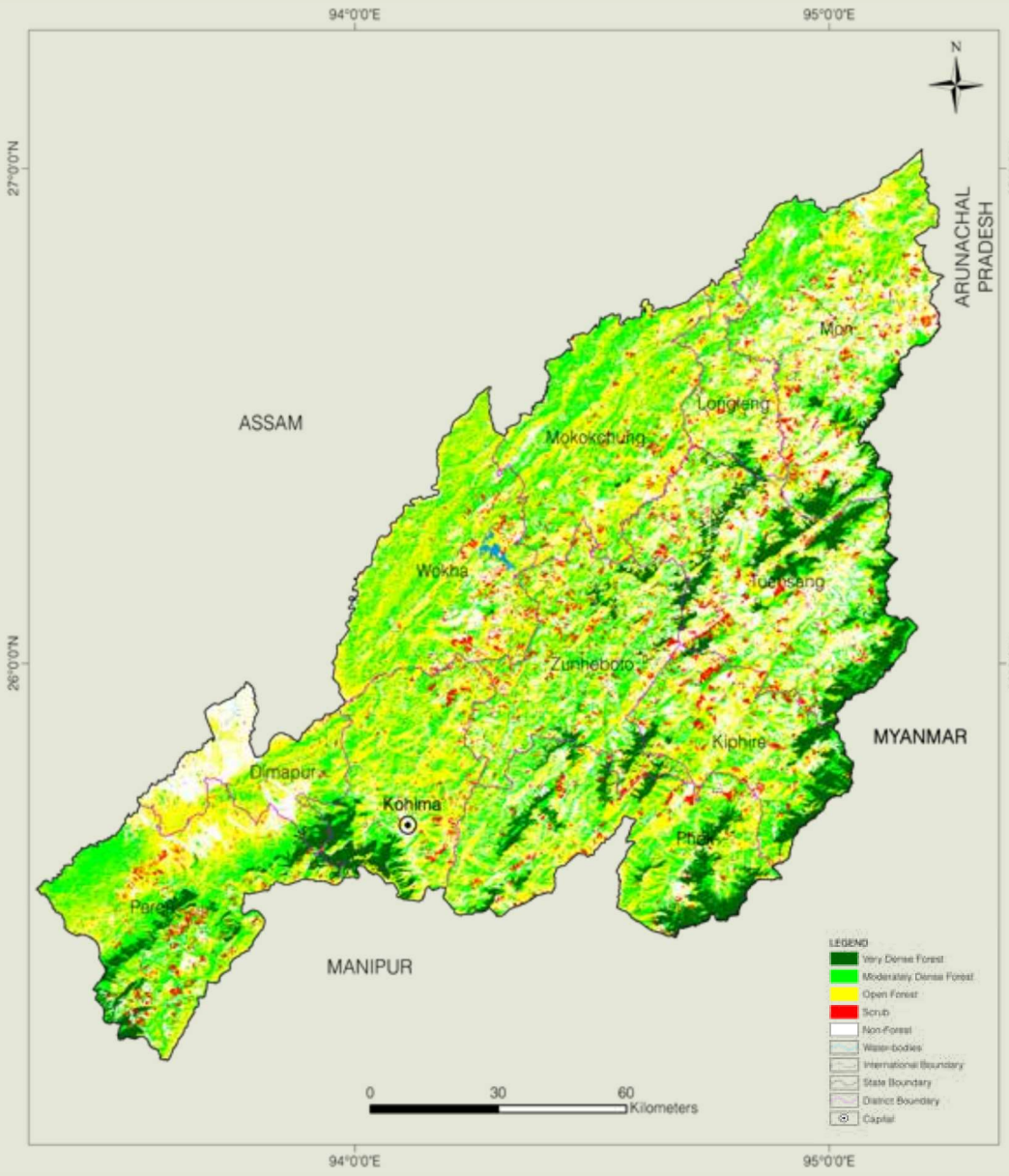


Figure 10.19.3 Forest Cover Map of Nagaland

Forest Survey of India

10.19.3 Forest Types

The area under different Forest Types in Nagaland (as per the Champion & Seth Forest Classification, 1968) based on the Forest Cover Map (FCM), ISFR-2023, is presented in the following table.

Table 10.19.9 Area Statistics of the Forest Types Found in Nagaland

(km^2)

Sl. No.	Forest Type	Area	% of the total mapped area*
1	1B/C1 Assam Valley tropical wet evergreen forest (*Dipterocarpus*)	71.66	0.55
2	1/2S1 Pioneer Euphorbiaceous scrub	667.27	5.17
3	2B/C1/2S2 Eastern alluvial secondary semi-evergreen forest	2,436.73	18.88
4	2/2S1 Secondary moist bamboo brakes	491.42	3.81
5	3C/C3b East Himalayan moist mixed deciduous forest	4,899.37	37.95
6	8B/C2 *Khasi* subtropical wet hill forest	2,008.62	15.56
7	9/C2 Assam subtropical pine forest	700.80	5.43
8	11B/C2 Naga hill wet temperate forest	1,446.81	11.21
9	12/DS1 Montane bamboo brakes	15.44	0.12
	Sub Total	**12,738.12**	**98.68**
10	TOF/ Plantation	151.62	1.17
	Total (Forest Cover & Scrub)	**12,889.74**	**99.86**
	Grassland forest type (outside forest cover)		
11	9/C2/DS1 Assam subtropical pine savannah	18.39	0.14
	Grand Total	**12,908.13**	**100.00**

**Forest Types have been assigned to the natural forest formations under forest cover and scrub categories shown in the forest cover mapping (ISFR, 2023).Grassland forest type outside forest cover has also been mapped. The total mapped area, therefore, is sum of forest cover, scrub and grassland forest types (found in non-forest).*

10.19.4 Forest Fire

District-wise number of forest fire detected by FSI using SNPP-VIIRS sensors (This includes large, continuous and repeated forest fires) during the fire season 2022-23 & 2023-24.

Table 10.19.10 District-wise Number of Forest Fire Detected

Sl. No.	District	SNPP-VIIRS Detection during 2022-23	SNPP-VIIRS Detection during 2023-24
1	Dimapur	196	134
2	Kiphire	209	239
3	Kohima	402	182
4	Longleng	118	115
5	Mokokchung	156	120
6	Mon	557	442
7	Peren	590	345
8	Phek	672	291
9	Tuensang	397	327
10	Wokha	248	185
11	Zunheboto	337	229
	Total	**3,882**	**2,609**

10.19.5 Fire Prone Forest Areas

Forest Cover under different classes of forest fire proneness is given in following table.

Table 10.19.11 Forest Fire Prone Classes

(km²)

Sl. No.	Forest Fire Prone Classes	Forest Cover*	% of Total Forest Cover
1	Extremely fire prone	0.00	0.00
2	Very highly fire prone	385.65	2.99
3	Highly fire prone	2,938.57	22.80
4	Moderately fire prone	4,410.46	34.22
5	Less fire prone	5,155.06	39.99
	Total	**12,889.74**	**100.00**

**Forest Cover including Scrub.*

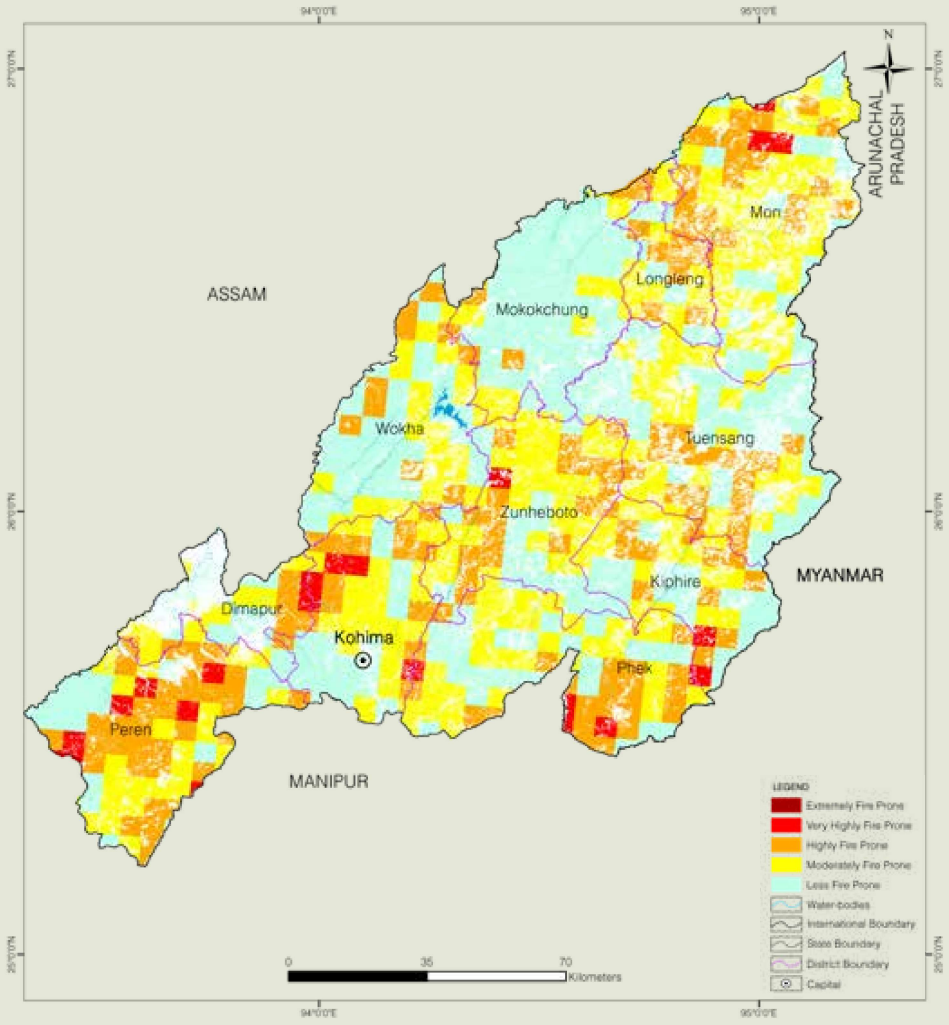


Figure 10.19.4 Fire Prone Forest Areas Under Different Fire Prone Classes

10.19.6 Results Derived from NFI for Nagaland

Table 10.19.12 Number of Trees and their volume for Top 5 Species in RFA

Sl. No.	Species	No. of Trees (in '000)	Volume (M m^3)
1	*Quercus species*	20,694	4.02
2	*Castanopsis species*	16,225	1.55
3	*Schima wallichii*	15,635	2.77
4	*Macaranga species*	12,677	1.69
5	*Premna bengalensis*	5,646	0.23

Table 10.19.13 Number of Trees and their volume for Top 5 Species in Rural Area

Sl. No.	Species	No. of Trees (in '000)	Volume (M m^3)
1	*Alnus nepalensis*	9,067	3.001
2	*Schima wallichii*	8,109	2.039
3	*Macaranga species*	7,969	0.695
4	*Castanopsis species*	5,454	0.433
5	*Quercus species*	4,954	0.452

Table 10.19.14 Number of Trees and their volume for Top 5 Species in Urban Area

Sl. No.	Species	No. of Trees (in '000)	Volume (M m^3)
1	*Areca catechu*	100	0.002
2	*Mangifera indica*	51	0.014
3	*Aquilaria malaccensis/ Aquilaria agallocha*	24	0.001
4	*Tectona grandis*	21	0.007
5	*Parkia javanica/ Gleditsia javanica*	16	0.002

Table 10.19.15 Major NTFP Species in Nagaland

Sl. No.	Species	Habit	No. of Plants (in '000)
1	*Emblica officinalis/ Phyllanthus emblica*	Tree	64,028
2	*Oroxylum indicum*	Tree	9,206
3	*Livistona jenkinsiana*	Tree	2,467
4	*Cinnamomum tamala*	Tree	255
5	*Clerodendrum colebrookeanum*	Shrubs	8,63,064
6	*Paris polyphylla*	Shrubs	1,29,460
7	*Butea buteiformis*	Shrubs	1,07,883
8	*Asparagus racemosus*	Climbers	4,15,350
9	*Thysanolaena latifolia/ Thysanolaena maxima*	Herbs	4,46,69,511
10	*Curcuma angustifolia*	Herbs	33,87,262

Table 10.19.16 Major invasive Species in the State inside the RFA in Nagaland

Sl. No.	Species	Estimated Extent (km^2)
1	*Chromolaena odorata*	777.86
2	*Mikania micrantha*	295.14
3	*Ageratina adenophora*	98.80
4	*Imperata cylindrica*	73.78
5	*Lantana camara*	70.03

Photo: FSI Repository

Forest Survey of India

Photo: FSI Repository