

HARYANA

**Geographical Area**44,212 km²**Geographical Coordinates**

Latitude 27°39' N to 30°55' N

Longitude 74°27' E to 77°36' E

Population (as per Census 2011)

25.35 million

Urban 8.84 million (34.87 %)

Rural 16.51 million (65.13 %)

Tribal Nil

Average Population Density573 per km²**Livestock Population**(as per 19th Livestock Census)

8.82 million

No. of Districts

22

No. of Hill Districts

0

No. of Tribal Districts

0

Table 10.9.1 Land Use Pattern

Land Use Types	Area (in '000 ha)	Percentage
Geographical Area	4,421	
Reporting area for land utilization	4,371.49	100.00
Forests	32.45	0.74
Not available for land cultivation	339.19	7.76
Permanent pastures and other grazing lands	152.72	3.49
Land under misc. tree crops and groves	37.37	0.85
Culturable wasteland	64.62	1.48
Fallow land other than current fallows	49.18	1.13
Current fallows	85.23	1.95
Net area sown	3,610.73	82.60

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

10.9.1 Forest Cover

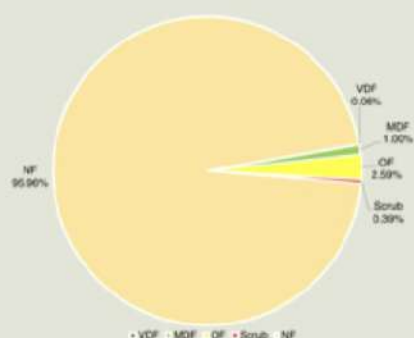


Table 10.9.2 Forest Cover of Haryana

(km ²)		
Class	Area	% of Calculated Area by Sol
VDF	27.17	0.06
MDF	441.18	1.00
OF	1,145.91	2.59
Total	1,614.26	3.65
Scrub	174.38	0.39

Figure 10.9.1 Forest Cover of Haryana

Table 10.9.3 District- wise Forest Cover in Haryana

(km ²)								
District	Calculated Area by Sol	2023 Assessment				% of Calculated Area by Sol	Change w.r.t. 2021 Raster based*	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Ambala	1,574	0.00	17.31	39.36	56.67	3.60	4.08	0.09
Bhiwani	3,386	0.00	4.08	58.53	62.61	1.85	-1.89	7.15
Charkhi Dadri	1,382	0.00	3.56	42.36	45.92	3.32	-1.24	9.00
Faridabad	741	0.00	25.98	52.45	78.43	10.58	-1.08	20.20
Fatehabad	2,538	0.00	2.96	18.35	21.31	0.84	-0.32	1.07
Gurugram	1,258	0.00	31.85	81.26	113.11	8.99	0.15	20.42
Hisar	3,993	0.00	10.75	47.79	58.54	1.47	-1.92	6.28
Jhajjar	1,834	0.00	0.23	25.33	25.56	1.39	0.65	6.43
Jind	2,701	0.00	4.79	21.64	26.43	0.98	0.26	0.08
Kaithal	2,318	0.00	21.51	32.81	54.32	2.34	-1.26	0.95
Karnal	2,494	0.00	4.16	28.79	32.95	1.32	0.04	0.67
Kurukshetra	1,536	0.00	19.94	26.09	46.03	3.00	-1.63	1.69
Mahendragarh	1,899	0.00	21.74	89.57	111.31	5.86	-1.72	40.09
Mewat	1,507	0.00	13.58	95.38	108.96	7.23	-4.05	27.15
Palwal	1,359	0.00	2.43	11.39	13.82	1.02	-0.21	0.20
Panchkula	898	5.70	147.59	236.83	390.12	43.44	-1.43	20.33
Panipat	1,288	0.00	3.10	12.87	15.97	1.24	-0.47	0.64
Rewari	1,594	0.00	11.90	49.55	61.45	3.86	-0.52	9.11
Rohtak	1,704	0.00	1.36	13.18	14.54	0.85	-4.28	1.02
Sirsa	4,277	0.00	3.54	61.04	64.58	1.51	1.05	0.15
Sonipat	2,163	0.00	2.66	19.98	22.64	1.05	-0.09	0.84
Yamunanagar	1,768	21.47	86.16	81.36	188.99	10.69	1.92	0.82
Grand Total	44,212	27.17	441.18	1,145.91	1,614.26	3.65	-13.96	174.38

*Area figure calculated without normalization factor.



Table 10.9.4 Forest Cover in Municipal Areas of Haryana

(km²)

Sl. No.	Name of Urban Local Body	Area as per Digitized Boundary*	2023 Assessment				% of Total Forest Cover w.r.t. Area of Digitized Boundary	Scrub
			Very Dense Forest	Mod. Dense Forest	Open Forest	Total Forest Cover		
1	Adampur	9.15	0.00	0.00	0.21	0.21	2.30	0.11
2	Ambala City	67.56	0.00	0.11	1.38	1.49	2.21	0.00
3	Ambala Sadar	56.27	0.00	1.44	0.82	2.26	4.02	0.00
4	Assandh	7.54	0.00	0.00	0.07	0.07	0.93	0.00
5	Ateli Mandi	2.03	0.00	0.00	0.00	0.00	0.00	0.00
6	Bahadurgarh	29.29	0.00	0.00	0.37	0.37	1.26	0.00
7	Barara	13.89	0.00	0.00	0.21	0.21	1.51	0.00
8	Barwala	9.34	0.00	0.00	0.06	0.06	0.64	0.02
9	Bawal	3.76	0.00	0.00	0.11	0.11	2.93	0.00
10	Bawani Khera	9.87	0.00	0.00	0.24	0.24	2.43	0.00
11	Beri	1.29	0.00	0.00	0.00	0.00	0.00	0.00
12	Bhiwani	40.52	0.00	0.00	0.73	0.73	1.80	0.05
13	Bhuna	4.25	0.00	0.00	0.01	0.01	0.24	0.00
14	Charkhi Dadri	15.80	0.00	0.19	0.55	0.74	4.68	0.30
15	Cheeka	31.05	0.00	0.00	0.44	0.44	1.42	0.00
16	Daruheda	11.51	0.00	0.00	0.06	0.06	0.52	0.00
17	Ellenabad	5.91	0.00	0.00	0.14	0.14	2.37	0.00
18	Faridabad	285.89	0.00	12.40	32.81	45.21	15.81	17.07
19	Farukh Nagar	20.21	0.00	0.01	0.13	0.14	0.69	0.00
20	Fatehabad	28.15	0.00	0.00	0.00	0.00	0.00	0.00
21	Ferozepur Jhirka	5.69	0.00	0.00	0.12	0.12	2.11	0.00
22	Gannaur	10.36	0.00	0.00	0.16	0.16	1.54	0.00
23	Gharunda	12.96	0.00	0.02	0.06	0.08	0.62	0.00
24	Gohana	12.31	0.00	0.07	0.02	0.09	0.73	0.00
25	Gurugram	297.99	0.00	8.73	28.78	37.51	12.59	7.01
26	Hansi	13.53	0.00	0.00	0.52	0.52	3.84	0.00
27	Hathin	4.10	0.00	0.00	0.08	0.08	1.95	0.00
28	Hisar	92.92	0.00	1.66	2.26	3.92	4.22	0.28
29	Hodal	10.80	0.00	0.09	0.00	0.09	0.83	0.00
30	Indri	1.88	0.00	0.00	0.07	0.07	3.72	0.00
31	Ismailabad	11.98	0.00	0.00	0.00	0.00	0.00	0.00
32	Jakhal Mandi	2.67	0.00	0.00	0.00	0.00	0.00	0.00
33	Jhajjar	35.57	0.00	0.00	0.66	0.66	1.86	0.12
34	Jind	37.50	0.00	0.60	0.55	1.15	3.07	0.00
35	Julana	13.85	0.00	0.00	0.03	0.03	0.22	0.00
36	Kaithal	39.87	0.00	0.69	0.08	0.77	1.93	0.00
37	Kalanaur	6.92	0.00	0.00	0.01	0.01	0.14	0.00
38	Kalanwali	7.96	0.00	0.35	0.11	0.46	5.78	0.00
39	Kalayati	12.68	0.00	0.00	0.36	0.36	2.84	0.00
40	Kalka	56.94	0.00	5.64	11.07	16.71	29.35	0.46
41	Kanina	4.39	0.00	0.00	0.00	0.00	0.00	0.00

Table 10.9.4 Forest Cover in Municipal Areas of Haryana

(km²)

Sl. No.	Name of Urban Local Body	Area as per Digitized Boundary*	2023 Assessment				% of Total Forest Cover w.r.t. Area of Digitized Boundary	Scrub
			Very Dense Forest	Mod. Dense Forest	Open Forest	Total Forest Cover		
42	Karnal	90.92	0.00	0.23	4.21	4.44	4.88	0.00
43	Kharkhoda	4.41	0.00	0.00	0.00	0.00	0.00	0.00
44	Kundli	7.85	0.00	0.02	0.00	0.02	0.25	0.00
45	Ladwa	7.98	0.00	0.00	0.03	0.03	0.38	0.00
46	Loharu	9.95	0.00	0.00	0.71	0.71	7.14	0.27
47	Mahendergarh	8.97	0.00	0.27	0.87	1.14	12.71	0.00
48	Mandi Dabwali	15.85	0.00	0.00	0.06	0.06	0.38	0.00
49	Manesar	138.18	0.00	6.37	9.70	16.07	11.63	1.16
50	Meham	3.33	0.00	0.04	0.00	0.04	1.20	0.00
51	Nagal Chaudhary	14.60	0.00	0.00	0.32	0.32	2.19	0.19
52	Naraingarh	8.95	0.00	0.13	0.00	0.13	1.45	0.00
54	Narnaul	63.36	0.00	0.19	1.78	1.97	3.11	0.92
53	Narnaund	6.39	0.00	0.00	0.00	0.00	0.00	0.00
55	Narwana	9.53	0.00	0.10	0.02	0.12	1.26	0.00
56	Nilokehri	5.08	0.00	0.00	0.44	0.44	8.66	0.00
57	Nissing	4.70	0.00	0.00	0.00	0.00	0.00	0.00
58	Nuh	7.21	0.00	0.00	0.00	0.00	0.00	0.00
59	Palwal	59.17	0.00	0.28	0.61	0.89	1.50	0.00
60	Panchkula	96.21	0.00	4.87	6.59	11.46	11.91	0.24
61	Panipat	60.47	0.00	0.27	0.34	0.61	1.01	0.20
62	Pataudi Mandi	62.99	0.00	0.00	0.62	0.62	0.98	0.00
63	Pehowa	13.10	0.00	0.00	0.20	0.20	1.53	0.00
64	Pundri	27.68	0.00	0.00	0.09	0.09	0.33	0.00
65	Punhana	10.19	0.00	0.00	0.02	0.02	0.20	0.00
66	Radaur	10.14	0.00	0.00	0.14	0.14	1.38	0.00
67	Rajound	39.37	0.00	0.14	0.47	0.61	1.55	0.00
68	Rania	6.63	0.00	0.00	0.07	0.07	1.06	0.00
69	Ratia	8.52	0.00	0.00	0.00	0.00	0.00	0.00
70	Rewari	25.78	0.00	0.00	0.78	0.78	3.03	0.00
71	Rohtak	139.29	0.00	0.05	2.59	2.64	1.90	0.42
72	Sadhaura	6.77	0.00	0.01	0.06	0.07	1.03	0.00
73	Safidon	8.38	0.00	0.09	0.04	0.13	1.55	0.00
74	Samalkha	4.65	0.00	0.00	0.00	0.00	0.00	0.00
75	Sampla	6.72	0.00	0.00	0.00	0.00	0.00	0.00
76	Shahabad	11.83	0.00	0.28	0.29	0.57	4.82	0.00
77	Sirsa	43.88	0.00	0.00	0.04	0.04	0.09	0.00
78	Siwan	41.77	0.00	0.16	2.12	2.28	5.46	0.00
79	Siwani	4.49	0.00	0.00	0.06	0.06	1.34	0.00
80	Sohna	70.48	0.00	4.57	11.94	16.51	23.43	0.20
81	Sonipat	104.07	0.00	0.43	1.16	1.59	1.53	0.00
82	Tarori	5.81	0.00	0.00	0.00	0.00	0.00	0.00

**Table 10.9.4 Forest Cover in Municipal Areas of Haryana**

Sl. No.	Name of Urban Local Body	Area as per Digitized Boundary*	2023 Assessment				% of Total Forest Cover w.r.t. Area of Digitized Boundary	Scrub
			Very Dense Forest	Mod. Dense Forest	Open Forest	Total Forest Cover		
83	Tauru	6.77	0.00	0.00	0.09	0.09	1.33	0.00
84	Thanesar	32.50	0.00	1.41	1.47	2.88	8.86	0.00
85	Tohana	13.76	0.00	0.00	0.13	0.13	0.94	0.00
86	Uchana	4.27	0.00	0.00	0.00	0.00	0.00	0.00
87	Uklana	3.86	0.00	0.00	0.01	0.01	0.26	0.00
88	Yamuna Nagar	111.87	0.00	0.82	3.54	4.36	3.90	0.15
Grand Total		2,794.83	0.00	52.73	134.89	187.62	6.71	29.17

*Shapefile of digitized boundary as provided by IT Cell, Department of Urban Local Bodies.

10.9.2 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 10.9.5 Forest Cover Inside and Outside Recorded Forest Area (or Green Wash) in Haryana

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
23.99	258.77	446.17	728.93	3.18	182.41	699.74	885.33
3.29%	35.50%	61.21%		0.36%	20.60%	79.04%	

*In case of Haryana, RFA boundaries have been used.

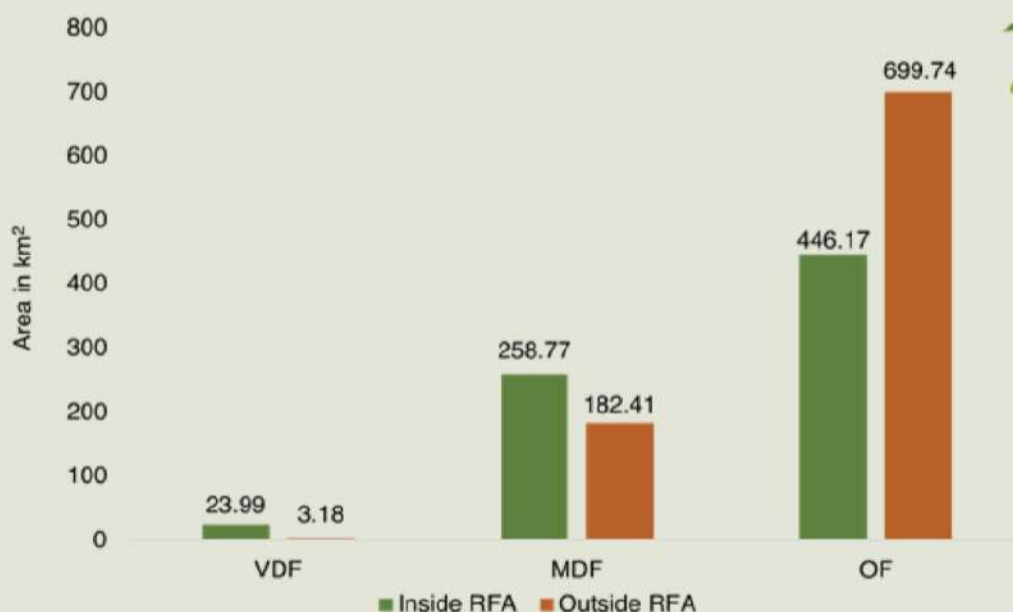


Figure 10.9.2 Forest Cover Inside and Outside of RFA in Haryana

Table 10.9.6 Forest Cover Change Matrix Inside RFA/GW for Haryana Between 2021 Raster based and 2023 Assessments

Class	2023 Assessment inside RFA/GW					(km ²)
	VDF	MDF	OF	Scrub	NF	Total ISFR 2021 inside RFA / GW Raster based*
VDF	23.99	0.00	0.00	0.00	0.00	23.99
MDF	0.00	257.68	0.15	0.13	1.12	259.08
OF	0.00	0.91	442.31	1.40	4.01	448.63
Scrub	0.00	0.03	1.88	56.42	0.83	59.16
NF	0.00	0.15	1.83	2.91	832.59	837.48
Total ISFR 2023 inside RFA / GW	23.99	258.77	446.17	60.86	838.55	1,628.34
Net Change	0.00	-0.31	-2.46	1.70	1.07	

*Area figure calculated without normalization factor.

Table 10.9.7 Forest Cover Change Matrix Outside RFA/GW for Haryana Between 2021 Raster based and 2023 Assessments

Class	2023 Assessment outside RFA/GW					(km ²)
	VDF	MDF	OF	Scrub	NF	Total ISFR 2021 outside RFA / GW Raster based*
VDF	3.18	0.00	0.00	0.00	0.00	3.18
MDF	0.00	180.33	1.60	0.34	3.71	185.98
OF	0.00	1.43	674.54	5.72	25.67	707.36
Scrub	0.00	0.03	2.90	95.16	6.13	104.22
NF	0.00	0.62	20.70	12.30	41,549.30	41,582.92
Total ISFR 2023 outside RFA/GW	3.18	182.41	699.74	113.52	41,584.81	42,583.66
Net Change	0.00	-3.57	-7.62	9.30	1.89	

*Area figure calculated without normalization factor.

**Table 10.9.8 Altitude-wise Forest Cover in Haryana**

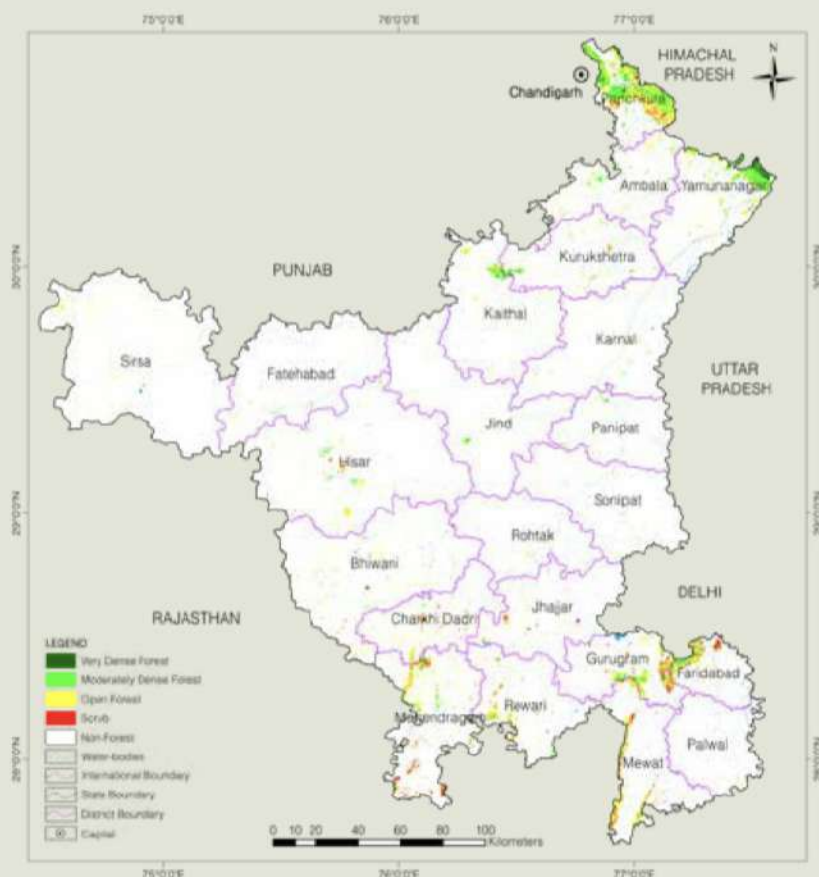
(km ²)						
Altitude Zone (m)	Calculated Area by Sol	VDF	MDF	OF	Total	Scrub
0-500	43,838	15.08	323.29	990.82	1,329.19	165.69
500-1000	330	12.09	97.58	134.36	244.03	8.29
1000-2000	44	0.00	20.31	20.73	41.04	0.40
Total	44,212	27.17	441.18	1,145.91	1,614.26	174.38

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

Table 10.9.9 Forest Cover in Different Slope Classes in Haryana

(km ²)						
Slope (in degrees)	Calculated Area by Sol	VDF	MDF	OF	Total	Scrub
0-5	42,615	13.88	232.96	804.59	1,051.43	110.82
5-10	1,104	6.47	75.32	129.27	211.06	26.21
10-15	228	3.86	56.10	83.87	143.83	14.91
15-20	126	2.11	36.73	58.23	97.07	9.97
20-25	74	0.68	21.67	36.54	58.89	6.61
25-30	41	0.15	12.09	20.69	32.93	3.67
>30	24	0.02	6.31	12.72	19.05	2.19
Total	44,212	27.17	441.18	1,145.91	1,614.26	174.38

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

**Figure 10.9.3 Forest Cover Map of Haryana**



10.9.3 Forest Types

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

Table 10.9.10 Area Statistics of the Forest Types found in Haryana

(km ²)			
Sl. No.	Forest Type	Area	% of the total mapped area*
1	5B/C1a Dry Siwalik sal forest	46.40	2.59
2	5B/C2 Northern dry mixed deciduous forest	526.58	29.44
3	5/DS1 Dry deciduous scrub	27.27	1.52
4	5/E1 <i>Anogeissus pendula</i> forest	96.70	5.41
5	5/E1/DS1 <i>Anogeissus pendula</i> scrub	16.83	0.94
6	5/E9 Dry bamboo brakes	7.31	0.41
7	6B/C1 Desert thorn forest	90.09	5.04
8	6B/C2 Ravine thorn forest	245.62	13.73
9	6/1S1 Desert dune scrub	103.74	5.80
10	9/C1a Lower or Siwalik chir pine forest	13.00	0.73
Sub Total		1,173.54	65.61
11	TOF/ Plantation	615.10	34.39
Total (Forest Cover & Scrub)		1,788.64	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). The total mapped area, therefore, is sum of forest cover and scrub.

10.9.4 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 10.9.11 District-wise Number of Forest Fire Detected

Sl. No.	District	SNPP-VIIRS Detection during 2022-23	SNPP-VIIRS Detection during 2023-24
1	Ambala	6	19
2	Bhiwani	0	0
3	Charkhi Dadri	0	0
4	Faridabad	0	12
5	Fatehabad	4	0
6	Gurugram	0	4
7	Hisar	2	0
8	Jhajjar	0	1
9	Jind	0	0
10	Kaithal	8	5
11	Karnal	3	1



Table 10.9.11 District-wise Number of Forest Fire Detected

Sl. No.	District	SNPP-VIIRS Detection during 2022-23	SNPP-VIIRS Detection during 2023-24
12	Kurukshetra	3	3
13	Mahendragarh	0	2
14	Mewat	0	0
15	Palwal	0	0
16	Panchkula	5	29
17	Panipat	32	16
18	Rewari	0	1
19	Rohtak	0	0
20	Sirsa	0	0
21	Sonapat	0	0
22	Yamunanagar	19	73
Grand Total		82	166

10.9.5 Fire Prone Forest Areas

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

Table 10.9.12 Forest Fire Prone Classes

(km ²)			
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	0.00	0.00
3	Highly fire prone	28.89	1.62
4	Moderately fire prone	79.71	4.46
5	Less fire prone	1,680.04	93.92
Total		1,788.64	100.00

*Forest Cover including Scrub



Figure 10.9.4 Fire Prone Forest Areas under Different Fire Prone Classes



10.9.6 Results Derived from NFI for Haryana

Table 10.9.13 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	<i>Eucalyptus species</i>	3,750	1.25
2	<i>Prosopis juliflora/ Neltuma juliflora</i>	2,640	0.41
3	<i>Acacia tortilis/ Vachellia tortilis</i>	2,617	0.37
4	<i>Acacia catechu/ Senegalia catechu</i>	1,846	0.25
5	<i>Anogeissus latifolia/ Terminalia anogeissiana</i>	781	0.25

Table 10.9.14 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	<i>Eucalyptus species</i>	23,968	4.940
2	<i>Dalbergia sissoo</i>	8,849	3.166
3	<i>Prosopis juliflora/ Neltuma juliflora</i>	7,254	0.411
4	<i>Prosopis cineraria</i>	6,588	3.428
5	<i>Azadirachta indica</i>	6,521	1.266

Table 10.9.15 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	<i>Eucalyptus species</i>	1,333	0.215
2	<i>Azadirachta indica</i>	677	0.189
3	<i>Prosopis juliflora/ Neltuma juliflora</i>	627	0.046
4	<i>Melia azedarach</i>	486	0.065
5	<i>Morus species</i>	448	0.063

Table 10.9.16 Major NTFP Species in Haryana

Sl. No.	Species	Habit	No. of Plants (in '000)
1	<i>Acacia nilotica/ Acacia arabica/ Vachellia nilotica</i>	Tree	9,994
2	<i>Acacia catechu/ Senegalia catechu</i>	Tree	6,897
3	<i>Anogeissus latifolia/ Terminalia anogeissiana</i>	Tree	6,393
4	<i>Adhatoda vasica/ Justicia adhatoda</i>	Shrubs	3,34,991
5	<i>Asparagus adscendens</i>	Shrubs	13,958
6	<i>Abrus precatorius</i>	Climbers	26,171
7	<i>Cucumis melo/ Cucumis pubescens</i>	Climbers	20,937
8	<i>Cassia tora/ Senna tora</i>	Herbs	23,53,082
9	<i>Achyranthes aspera</i>	Herbs	15,46,311



Table 10.9.17 Major Invasive Species in the State inside the RFA in Haryana

Sl. No.	Species	Estimated Extent (km ²)
1	<i>Lantana camara</i>	89.05
2	<i>Prosopis juliflora</i> / <i>Neltuma juliflora</i>	61.30
3	<i>Saccharum spontaneum</i>	31.18
4	<i>Ageratum houstonianum</i>	11.63
5	<i>Leucaena leucocephala</i>	8.46



Photo: FSI Repository