

Vegetation Types of India following Champion and Seth 1968

Sl. No	Vegetation Type	General composition	* Area in Sq. Km	%
1	Tropical wet evergreen forests	Dense Tall forests, entirely evergreen or nearly so	51,249	8.0
2	Tropical semi evergreen forests	Domants includes deciduous species but evergreens predominants	26,424	4.1
3	Tropical Moist deciduous forest	Dominants mainly deciduous but sub-dominants and lower story largely evergreen top canopy even and dense but 25m high	236,794	37.0
4	Tropical dry deciduous forest	Entirely deciduous or nearly so top canopy uneven rarely over 25 m high	186,620	28.6
5	Tropical thorny/ scrub forests	Deciduous with low thorny trees and xerophytes predominats top canopy more or less broken, less than 10 m high	16,491	2.6
6	Tropical dry evergreen forest	Hard leaved evergreen trees predominates with some deciduous emergent often dense but usually under 20 m high	1,404	0.2
7	Littoral and swampy forest	Mainly evergreens of varying density and height but always associated predominantly with wetness	4,046	0.6
8	Subtropical broad-leaved hill forests	Broad-leaved largely evergreen high forests	2,781	0.4
9	Subtropical pine forests	Pine associated predominates	42,377	6.6
10	Subtropical dry evergreen forests	Low xerophytic forest and scrubs	12,538	2.5
11	Montane wet temperate forests	Evergreen without coniferous species	23,365	3.6
12	Himalayan wet/ moist temperate forests	Evergreen forests mainly scleriphyllous oak and coniferous species	22,012	3.4
13	Himalayan dry temperate forests	Coniferous forests with sparse xerophytic undergrowth	312	-
14	Sub-alpine forests	Stunted deciduous or evergreen forests, usually close formation with or without confers		
15	Moist alpine	Low but often dense scrub of evergreen species	18,628	2.9
16	Dry alpine	Xerophytic scrub in open formation mostly of deciduous in nature		

Seasons best for Identification of Major Vegetation Types

Sl.No	Vegetation Type	Season for Forest Type	Season for Forest Density	* Composite Scale
1	Tropical wet/dry Semi Evergreen	Mar/Apr	Nov/Dec	1:100,000
2	Tropical Moist deciduous	Feb/Mar	Oct/Nov	1:100,000
Sl.No	Vegetation Type	Season for Forest Type	Season for Forest Density	* Composite Scale
3	Deciduous	Tropical Late Feb	Late. Nov	Dry/Throny 1:50,000
4	Littoral and swampy	Mar/April	Nov	1:50,000
5	Temperate	April/May	Late. Nov	Subtropical 1:50,000
6	Subalpine/Alpine	Oct/ Nov	Early Nov	1:100,000
7	Sal Forest	April	Nov	1:50,000
8	Teak Forest	Late feb	Nov/Dec	1:50,000

**Area of Forest and land Use/cover classes for East District, Sikkim Based on
IRS-1A LISS II Satellite Data 1988**

Area in Sq. kms

Class	District	Reserve Forest
Cropland (Terraced/semi-terraced)	130.02	0.00
Fallow/Scrub in Revenue Blocks	93.64	0.00
Sal Dense Forest	0.05	0.02
Sal Open Forest	1.55	1.21
Sal degraded Forest	0.00	0.00
Mixed Dense Forest	132.86	97.84
Mixed open	203.86	94.98
Mix Degraded Forest	78.53	28.37
Dense Conifer Forest	37.51	37.40
Open conifer Forest	49.49	49.24
Degraded Conifer Forest	25.36	25.26
Oak- Rhododendron Forest	0.00	0.00
Scrubs in Reserved Forest	20.20	20.20
Forest Blanks	12.95	12.95
Alpine Scrub	67.14	64.85
Alpine pastures	0.00	0.00
Alpine Barren	65.33	64.60
Snow	10.57	6.62
Glaciers	0.00	0.00
Lakes	3.94	3.93
River/Major streams	11.22	3.92
Dry River Bed	5.71	0.47
Built – up Areas	2.45	0.00
Land Slide/ Rock Outcrop Areas	1.62	0.23
Miscellaneous	0.00	0.00
Total	954.00	512.09

Dense – Canopy cover > 0.4

Open -- Canopy cover 0.2-0.4

Degraded – Canopy cover 0.1-0.2

Scrubs – Canopy cover <0.1

**Area of Forest and land Use/cover classes for West District, Sikkim Based on
IRS-1A LISS II Satellite Data 1988**

Area in Sq. kms

Class	District	Reserve Forest
Cropland (Terraced/semi-terraced)	182.59	0.00
Fallow/Scrub in Revenue Blocks	39.15	0.00
Sal Dense Forest	0.00	0.00
Sal Open Forest	0.01	0.01
Sal degraded Forest	0.05	0.05
Mixed Dense Forest	151.27	130.68
Mixed open Forest	142.66	81.73
Mix Degraded Forest	114.85	51.00
Dense Conifer Forest	67.57	66.70
Open conifer Forest	103.75	98.23
Degraded Conifer Forest	44.05	35.57
Oak- Rhododendron Forest	32.33	28.27
Scrubs in Reserved Forest	8.15	8.15
Forest Blanks	18.98	18.98
Alpine Scrub	64.82	64.17
Alpine pastures	0.00	0.00
Alpine Barren	89.91	89.69
Snow	92.24	92.08
Glaciers	0.00	0.00
Lakes	2.58	2.55
River/Major streams	7.56	2.09
Dry River Bed	1.57	0.25
Built – up Areas	0.37	0.07
Land Slide/ Rock Outcrop Areas	1.54	0.72
Miscellaneous	0.00	0.00
Total	1166.00	770.00

Dense – Canopy cover > 0.4

Open -- Canopy cover 0.2-0.4

Degraded – Canopy cover 0.1-0.2

Scrubs – Canopy cover <0.1

**Area of Forest and land Use/cover classes for South District, Sikkim Based on
IRS-1A LISS II Satellite Data 1988**

Area in Sq. kms

Class	District	Reserve Forest
Cropland (Terraced/semi-terraced)	199.48	0.00
Fallow/Scrub in Revenue Blocks	32.42	0.00
Sal Dense Forest	3.71	3.03
Sal Open Forest	5.93	4.92
Sal degraded Forest	3.11	2.54
Mixed Dense Forest	113.59	78.05
Mixed open Forest	148.66	58.37
Mix Degraded Forest	69.32	19.54
Dense Conifer Forest	27.66	25.71
Open conifer Forest	21.31	19.42
Degraded Conifer Forest	10.55	9.10
Oak- Rhododendron Forest	10.69	6.76
Scrubs in Reserved Forest	11.34	11.34
Forest Blanks	18.06	18.06
Alpine Scrub	30.32	25.76
Alpine pastures	0.00	0.00
Alpine Barren	13.36	11.88
Snow	11.94	10.68
Glaciers	0.00	0.00
Lakes	0.00	0.00
River/Major streams	9.56	0.77
Dry River Bed	2.83	0.26
Built – up Areas	0.53	0.18
Land Slide/ Rock Outcrop Areas	5.64	2.76
Miscellaneous	0.00	0.00
Total	750	309.13

Dense – Canopy cover > 0.4

Open - – Canopy cover 0.2-0.4

Degraded – Canopy cover 0.1-0.2

Scrubs – Canopy cover <0.1

**Area of Forest and land Use/cover classes for North District, Sikkim Based on
IRS-1A LISS II Satellite Data 1988**

Area in Sq. kms

Class	District	Reserve Forest
Cropland (Terraced/semi-terraced)	29.35	0.00
Fallow/Scrub in Revenue Blocks	70.10	0.00
Sal Dense Forest	0.00	0.00
Sal Open Forest	0.00	0.00
Sal degraded Forest	0.00	0.00
Mixed Dense Forest	205.62	168.51
Mixed open Forest	276.14	209.91
Mix Degraded Forest	166.82	98.38
Dense Conifer Forest	235.32	225.90
Open conifer Forest	187.19	178.03
Degraded Conifer Forest	93.41	88.77
Oak- Rhododendron Forest	83.03	66.27
Scrubs in Reserved Forest	62.39	62.39
Forest Blanks	44.60	44.60
Alpine Scrub	477.64	459.54
Alpine pastures	433.00	432.41
Alpine Barren	651.47	646.83
Snow	908.64	907.99
Glaciers	208.47	208.47
Lakes	25.28	28.29
River/Major streams	35.45	24.91
Dry River Bed	30.37	30.37
Built – up Areas	0.17	0.00
Land Slide/ Rock Outcrop Areas	1.54	1.54
Miscellaneous	0.00	0.00
Total	4226.00	3880.11

Dense – Canopy cover > 0.4

Open - - Canopy cover 0.2-0.4

Degraded – Canopy cover 0.1-0.2

Scrubs – Canopy cover <0.1

Area Statistics for Biosphere Reserve

(in Sq. km)

	Class	North		West		South		Total		Grand
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Mixed Dense Forest	89.15	6.36	39.31	0.58	51.41	1.42	179.86	8.37	188.23
2	Mixed open Forest	93.99	10.86	28.07	1.05	29.08	0.78	151.14	12.70	163.84
3	Mix Degraded Forest	45.97	9.25	19.23	0.39	8.34	0.66	73.54	10.30	83.84
4	Dense Conifer Forest	41.71	13.41	53.15	2.74	23.69	1.10	118.56	17.25	135.81
5	Open conifer Forest	69.46	6.10	74.50	9.38	16.11	2.57	160.07	18.05	178.12
6	Degraded Conifer Forest	16.58	4.03	28.60	2.89	7.54	1.19	52.73	8.11	60.84
7	Oak- Rhododendron Forest	29.79	5.75	20.38	0.16	5.51	0.77	55.68	7.13	62.81
8	Scrubs in Reserved Forest	17.75	4.56	3.20	0.16	2.47	0.44	23.43	5.16	28.59
9	Forest Blanks	13.42	4.86	1.41	0.00	4.56	0.40	19.39	5.27	24.65
10	Alpine Scrub	129.41	44.04	51.58	8.43	4.47	6.86	185.45	59.33	244.79
11	Alpine pastures	7.34	0.68	0.00	0.00	0.00	0.00	7.34	0.68	8.02
12	Alpine Barren	67.75	30.34	72.34	19.31	5.16	5.88	145.25	55.53	200.78
13	Snow	277.01	100.00	68.37	25.73	5.99	3.82	351.37	129.55	480.93
14	Glaciers	107.87	29.81	0.00	0.00	0.00	0.00	107.87	29.81	137.68
15	Lakes	1.86	0.00	2.34	0.08	0.00	0.00	4.20	0.08	4.28
16	River/Major streams	8.41	2.95	1.47	0.10	0.46	0.03	10.34	3.08	13.42
17	Dry River Bed	6.29	1.69	0.00	0.00	0.00	0.00	6.29	1.69	7.98
	Total	1023.76	274.69	463.95	71.45	164.79	25.92	1652.51	372.09	2024.61

Class	North	West	South	Grand total	% age of Total
Mixed Forest	255.59	88.63	91.69	435.91	21.53
Conifer/ Oak- Rhodo Forest (4+5+6+7)	186.83	192.26	58.49	437.58	21.61
Forest Blanks/Scrubs (8+9)	40.60	4.77	7.87	53.25	2.63
Alpine Scrub/Pastures (10+11)	181.47	60.01	11.33	252.81	12.49
Alpine Barren(12)	98.09	91.65	11.04	200.78	9.92
Snow(13+14)	514.69	94.10	9.81	618.60	30.55
Lakes /Streams/dry River (15+16+17)	21.20	3.99	0.49	25.68	1.27
Total	1298.47	535	190.74	2024.60	100.00
Dense Foresr (1+4)	150.63	95.78	77.63	324.04	16.01
Open Forest (2+5+7)	215.96	133.99	54.81	404.76	19.99
Degraded Forest (3+6)	75.83	51.11	17.74	144.68	7.15
Forest Blanks / Scrubs (8+9)	40.60	4.77	7.87	53.25	2.63
Alpine Scrubs/ Pasture (10+11)	181.47	60.01	11.33	252.81	12.49
Alpine Barren (12)	98.09	91.65	11.04	200.78	9.92
Snow (13+14)	514.69	94.10	9.81	618.60	30.55
Lakes /Streams/dry River (15+16+17)	21.20	3.99	0.49	25.68	1.27
Total	1298.47	535	190.74	2024.60	100.00