

## APPENDIX A

Phytosociological table for the tree layers in different forest in Darjiling hills

**Table 1: Tropical forest**

Sl.No.	Name	Indiv	FQ	D/ha	BA/m <sup>2</sup>	RF	RD	RDm	IVI
1	<i>Lagestromia parviflora</i> Roxburgh	6	20	7.5	0.420843	2.877698	1.948052	0.808085	5.633834
2	<i>Sterculia villosa</i> Smith	2	5	2.5	0.350835	0.719424	0.649351	0.673658	2.042434
3	<i>Shorea robusta</i> Gaertner.f.	89	80	111.25	28.71917	11.51079	28.8961	55.14528	95.55218
4	<i>Pinus roxburghii</i> Sargent	34	60	42.5	0.318218	8.633094	11.03896	0.611028	20.28308
5	<i>Amoora rohituka</i>	5	20	6.25	0.814638	2.877698	1.623377	1.564232	6.065306
6	<i>Tetrameles nudiflora</i>	1	5	1.25	0.050915	0.719424	0.324675	0.097764	1.141864
7	<i>Anthocephalus cadamba</i> Miquel	1	5	1.25	0.061607	0.719424	0.324675	0.118295	1.162395
8	<i>Zizyphus xylopyrus</i> Willdenow	4	20	5	0.477526	2.877698	1.298701	0.916924	5.093323
9	<i>Castanopsis armata</i> Spach	2	10	2.5	0.167263	1.438849	0.649351	0.321172	2.409371
10	<i>Tectona grandis</i> Linnaeus.f.	1	5	1.25	0.134447	0.719424	0.324675	0.258159	1.302259
11	<i>Schima wallichii</i> (D.C)Korthals	3	10	3.75	0.350835	1.438849	0.974026	0.673658	3.086533
12	<i>Michellia champaca</i> Linaeus	12	25	15	3.89817	3.597122	3.896104	7.485094	14.97832
13	<i>Machilus villosa</i> (Roxburgh)Hook.f.	1	5	1.25	0.114558	0.719424	0.324675	0.21997	1.26407
14	<i>Albizia procera</i> (Roxburgh)Bentham	1	5	1.25	0.024065	0.719424	0.324675	0.046209	1.090309
15	<i>Magnifera indiana</i> Linnaeus	1	5	1.25	0.134447	0.719424	0.324675	0.258159	1.302259
16	<i>Bridella sikkimensis</i> Gehrman	1	5	1.25	0.124304	0.719424	0.324675	0.238683	1.282783
17	<i>Ficus semicordata</i> Smith	1	5	1.25	0.155927	0.719424	0.324675	0.299404	1.343504
18	<i>Ficus cunia</i> Roxburgh	1	5	1.25	0.420843	0.719424	0.324675	0.808085	1.852184
19	<i>Bridella retusa</i> (Linnaeus)Sprengel	7	15	8.75	0.71599	2.158273	2.272727	1.374813	5.805814
20	<i>Terminalai bellirica</i> (Gaetner)Roxburgh	22	65	27.5	5.349244	9.352518	7.142857	10.27138	26.76676
21	<i>Terminalai alata</i> Roth	10	20	12.5	0.71599	2.877698	3.246753	1.374813	7.499264
22	<i>Bombax ceiba</i> Linnaeus	1	5	1.25	0.012729	0.719424	0.324675	0.024441	1.068541
23	<i>Terminalia chebula</i> Retzius	5	10	6.25	0.420843	1.438849	1.623377	0.808085	3.87031

24	<i>Phoebe sp</i>	4	10	5	0.257757	1.438849	1.298701	0.494933	3.232483
25	<i>Castanopsis hystrix</i> A.Dc	17	40	21.25	1.988862	5.755396	5.519481	3.818925	15.0938
26	<i>Litsea sp</i>	11	30	13.75	0.974543	4.316547	3.571429	1.871273	9.759249
27	<i>Rhus semialata</i> Murray	3	10	3.75	0.114558	1.438849	0.974026	0.21997	2.632845
28	<i>Acacia sp</i>	2	5	2.5	0.096261	0.719424	0.649351	0.184836	1.553611
29	<i>Mallotus philippensis</i> (Lamarck)Mueller	34	105	42.5	3.058075	15.10791	11.03896	5.87198	32.01885
30	<i>Bauhinia purpurea</i> Linnaeus	11	35	13.75	0.458234	5.035971	3.571429	0.87988	9.48728
31	<i>Albizia chinensis</i> (Osbeck )Merrill	9	25	11.25	0.91965	3.597122	2.922078	1.765871	8.285071
32	<i>Callicarpa arborea</i> Roxburgh	1	5	1.25	0.012729	0.719424	0.324675	0.024441	1.068541
33	<i>Dalbergia sericea</i> G.Don	1	5	1.25	0.02864	0.719424	0.324675	0.054993	1.099092
34	<i>Toona serrata</i> Royle	1	5	1.25	0.012729	0.719424	0.324675	0.024441	1.068541
35	<i>Casearia vareca</i> Roxburgh	3	10	3.75	0.20366	1.438849	0.974026	0.391058	2.803933
	Total	308	695	385	52.07911	100	100	100	300

**Table 2: Sub-tropical forest**

Sl.No.	Name	Indiv	FQ	D/ha	BA/m <sup>2</sup>	RF	RD	RDm	IVI
1	<i>Ailanthus integrifolia</i> Lamarck	10	30	12.5	0.537788	2.752294	2.398082	0.910595	6.060971
2	<i>Albizia gamblei</i> Prain	13	35	16.25	0.71599	3.211009	3.117506	1.212331	7.540846
3	<i>Betula alnoides</i> D.Don	23	55	28.75	2.494829	5.045872	5.515588	4.224301	14.78576
4	<i>Bombax cebia</i> Linnaeus	3	10	3.75	0.497216	0.917431	0.719424	0.841897	2.478752
5	<i>Castanopsis indica</i> (Roxburgh)A.DC	13	20	16.25	2.151154	1.834862	3.117506	3.642382	8.59475
6	<i>Brassaiopsis mitis</i> Clarke	18	95	22.5	1.470963	8.715596	4.316547	2.490667	15.52281
7	<i>Chukrasia tabularis</i> Jussieu	37	75	46.25	16.72633	6.880734	8.872902	28.3214	44.07504
8	<i>Cinnamomum tamala</i> (Hamilton) Nees & Ebermaier	7	10	8.75	1.403341	0.917431	1.678657	2.376169	4.972257
9	<i>Cryptoperia japonica</i> (Linnaeus f.)D.Don	21	75	26.25	3.571201	6.880734	5.035971	6.046839	17.96354
10	<i>Cupressus cornyeana</i> Carriere	25	60	31.25	3.058075	5.504587	5.995204	5.178001	16.67779

11	<i>Dubanga grandiflora</i> (D.C)Walpers	11	60	13.75	2.676213	5.504587	2.63789	4.531425	12.6739
12	<i>Engelhardtia spicata</i> Blume	13	35	16.25	6.733492	3.211009	3.117506	11.4013	17.72982
13	<i>Eurya acuminata</i> DC.	31	95	38.75	1.071512	8.715596	7.434053	1.814308	17.96396
14	<i>Ficus nerifolia</i> J.E Smith	13	20	16.25	0.497216	1.834862	3.117506	0.841897	5.794265
15	<i>Ficus religiosa</i> Linnaeus	7	15	8.75	0.814638	1.376147	1.678657	1.379364	4.434167
16	<i>Gmelina arborea</i> Roxburgh	3	5	3.75	0.350835	0.458716	0.719424	0.594042	1.772182
17	<i>Leucosceptrum cannum</i> Smith	5	15	6.25	0.025576	1.376147	1.199041	0.043306	2.618493
18	<i>Macaranga denticulata</i> (Blume)Mueller	31	85	38.75	0.114558	7.798165	7.434053	0.193973	15.42619
19	<i>Magnifera indica</i> Linnaeus	21	40	26.25	0.720772	3.669725	5.035971	1.220427	9.926123
20	<i>Michelia doltsopa</i> DC.	9	10	11.25	0.327836	0.917431	2.158273	0.5551	3.630804
21	<i>Phyllanthus emblica</i> Linnaeus	17	45	21.25	0.350835	4.12844	4.076739	0.594042	8.799221
22	<i>Quercus griffithii</i> Miquel	13	25	16.25	0.814638	2.293578	3.117506	1.379364	6.790447
23	<i>Schima wallichii</i> (DC)Korthals	30	85	37.5	5.349244	7.798165	7.194245	9.057461	24.04987
24	<i>Tectona grandis</i> Linnaeus	20	45	25	5.349244	4.12844	4.796163	9.057461	17.98206
25	<i>Wrightia arborea</i> (Dennstaedt) Mabblerley	13	25	16.25	0.420843	2.293578	3.117506	0.712581	6.123665
26	<i>Cyathea brunoniana</i>	10	20	12.5	0.814638	1.834862	2.398082	1.379364	5.612307
	Total	417	1090	521.25	59.05898	100	100	100	300

**Table 3: Temperate forest**

Sl. No.	Name	Indiv	FQ	D/ha	BA/m <sup>2</sup>	RF	RD	RDm	IVI
1	<i>Photina sp</i>	7	20	8.75	0.420843	1.746725	1.518438	0.669714	3.934877
2	<i>Quercus lamellosa</i> Smith	11	20	13.75	1.470963	1.746725	2.386117	2.340835	6.473677
3	<i>Quercus lineata</i> Bl.	26	55	32.5	2.151154	4.803493	5.639913	3.423265	13.86667
4	<i>Lithocarpus plachyphylla</i> (Kurz) Rehder	23	80	28.75	2.319809	6.9869	4.989154	3.691657	15.66771
5	<i>Symplocus theifolia</i> D. Don	13	40	16.25	0.350835	3.49345	2.819957	0.558306	6.871713
6	<i>Tsuga dumosa</i> (Don)Eichler	23	85	28.75	23.5354	7.423581	4.989154	37.45336	49.86609
7	<i>Maesa chisia</i> D. Don	2	10	2.5	0.064439	0.873362	0.433839	0.102546	1.409748

8	<i>Eurya acuminata</i> DC.	5	15	6.25	0.144988	1.310044	1.084599	0.230729	2.625371
9	<i>Rhododendron arboreum</i> Smith	9	25	11.25	0.601631	2.183406	1.952278	0.957413	5.093097
10	<i>Taxus baccata</i> Linnaeus	18	35	22.5	6.733492	3.056769	3.904555	10.71543	17.67675
11	<i>Prunus napaulensis</i> Schn.	3	15	3.75	0.257757	1.310044	0.650759	0.410184	2.370987
12	<i>Machillus edulis</i> Hook.f.	5	25	6.25	0.764519	2.183406	1.084599	1.216626	4.484631
13	<i>Gamblea ciliata</i> Clarke	5	15	6.25	0.814638	1.310044	1.084599	1.296384	3.691027
14	<i>Rhododendron grande</i> Wight	28	35	35	2.234686	3.056769	6.073753	3.556195	12.68672
15	<i>Acer campbelli</i> Hiern	3	10	3.75	0.050915	0.873362	0.650759	0.081024	1.605146
16	<i>Dodecadenia grandiflora</i> Nees	4	10	5	0.420843	0.873362	0.867679	0.669714	2.410756
17	<i>Alnus nepalensis</i> D.Don	23	75	28.75	2.151154	6.550218	4.989154	3.423265	14.96264
18	<i>Exbucklandia populnea</i> (Griffith)Brown	21	65	26.25	3.058075	5.676856	4.555315	4.866506	15.09868
19	<i>Michelia cathcartii</i> Hk.f& T.	11	35	13.75	0.814638	3.056769	2.386117	1.296384	6.73927
20	<i>Engelhardtia spicata</i> Bl.	21	45	26.25	1.403341	3.930131	4.555315	2.233225	10.71867
21	<i>Evodia fraxinifolia</i> HK.f.,	27	45	33.75	3.058075	3.930131	5.856833	4.866506	14.65347
22	<i>Eriobotrya petiolata</i> HK.f.	23	45	28.75	1.470963	3.930131	4.989154	2.340835	11.26012
23	<i>Magnollia campbelli</i> Hook.f. & Thomson	21	70	26.25	2.151154	6.113537	4.555315	3.423265	14.09212
24	<i>Viburnum erubescens</i> DC.	23	50	28.75	0.420843	4.366812	4.989154	0.669714	10.02568
25	<i>Cinnamomum caudatum</i> (Ness)Merrill	5	10	6.25	0.385044	0.873362	1.084599	0.612744	2.570705
26	<i>Daphne bhoola</i> D.Don	19	25	23.75	0.350835	2.183406	4.121475	0.558306	6.863187
27	<i>Macaranga pustulata</i> Hook.f.	21	75	26.25	0.385044	6.550218	4.555315	0.612744	11.71828
28	<i>Cryptomeria japonica</i> (L.f.)Don	33	60	41.25	3.571201	5.240175	7.158351	5.683076	18.0816
29	<i>Celtis tetrandia</i> Roxburgh	21	35	26.25	0.861106	3.056769	4.555315	1.370332	8.982415
30	<i>Cyathea spinulosa</i>	7	15	8.75	0.420843	1.310044	1.518438	0.669714	3.498196
	Total	461	1145	576.25	62.83923	100	100	100	300

**Table 4:Sub -Alpine forest**

Sl. No.	NAME	Indiv	FQ	D/ha	BA/m <sup>2</sup>	RF	RD	RDm	IVI
1	<i>Acer cambelli</i> Hiern	4	12.5	5	0.350835	2.484472	0.729927	0.732925	3.947324
2	<i>Dodecadenia grandiflora</i> Ness	1	3.125	1.25	0.050915	0.621118	0.182482	0.106366	0.909965
3	<i>Betuala utilis</i> Don	9	25	11.25	0.814638	4.968944	1.642336	1.701849	8.313129
4	<i>Rhododendron arboreum</i> Smith	169	81.25	211.25	7.485282	16.14907	30.83942	15.6374	62.62588
5	<i>Rhododendron falconeri</i> Hooker	179	90.625	223.75	20.87828	18.01242	32.66423	43.61653	94.29319
6	<i>Symplocos glomerata</i> Clarke	25	28.125	31.25	1.272872	5.590062	4.562044	2.659139	12.81125
7	<i>Photina</i> sp	1	3.125	1.25	0.045951	0.621118	0.182482	0.095995	0.899595
8	<i>Sorbus cupsidata</i> (Spanch)Hedl	4	6.25	5	0.623707	1.242236	0.729927	1.302978	3.275141
9	<i>Taxus baccata</i> Linnaeus	2	6.25	2.5	0.171909	1.242236	0.364964	0.359133	1.966333
10	<i>Rhododendron barbaratum</i>	40	62.5	50	1.403341	12.42236	7.29927	2.931701	22.65333
11	<i>Rhododendron campanulatum</i>	33	46.875	41.25	1.403341	9.31677	6.021898	2.931701	18.27037
12	<i>Magnolia campbelli</i> Hook.f. & Thomson	11	15.625	13.75	0.814638	3.10559	2.007299	1.701849	6.814738
13	<i>Tsuga dumosa</i> (D.Don)Eichler	23	18.75	28.75	4.239459	3.726708	4.19708	8.856595	16.78038
14	<i>Lyonia ovalifolia</i> (Wallich)Drude	21	40.625	26.25	0.814638	8.074534	3.832117	1.701849	13.6085
15	<i>Acer sikkimensis</i> Miq.	11	28.125	13.75	0.764519	5.590062	2.007299	1.597145	9.194507
16	<i>Abies densa</i> Miller	15	34.375	18.75	6.733492	6.832298	2.737226	14.06685	23.63637
	Total	548	503.125	685	47.86782	100	100	100	300

**APPENDIX B**

Phytosociological table for the Shrub layers in different forest in Darjiling hills.

**Table1: Tropical forest**

Sl. No.	Name	Indiv	FQ	D/m <sup>2</sup>	AB	RF	RD	RA	IVI
1	<i>Desmodium laxiflorum</i> DC	7	3.75	0.0035	2.333333	0.47619	0.7	3.228337	4.404528

2	<i>Phyllanthus emblica</i> Linnaeus	67	61.25	0.0335	1.367347	7.777778	6.7	1.891824	16.3696
3	<i>Smilax lanceifolia</i> Roxburgh	21	16.25	0.0105	1.615385	2.063492	2.1	2.235003	6.398495
4	<i>Thysanolaena maxima</i> (Roxburgh)Kuntze	31	28.75	0.0155	1.347826	3.650794	3.1	1.864816	8.61561
5	<i>Acacia sp</i>	21	6.25	0.0105	4.2	0.793651	2.1	5.811007	8.704658
6	<i>Eupatorium odoratum</i> Linnaeus	91	83.75	0.0455	1.358209	10.63492	9.1	1.879181	21.6141
7	<i>Shorea robusta</i> Gaertner f.	21	22.5	0.0105	1.166667	2.857143	2.1	1.614169	6.571311
8	<i>Croton caudatus</i> Geiseier	33	21.25	0.0165	1.941176	2.698413	3.3	2.68576	8.684172
9	<i>Maesa chisa</i> D.Don	13	6.25	0.0065	2.6	0.793651	1.3	3.59729	5.690941
10	<i>Clerodendron viscosum</i> Ventennat	131	87.5	0.0655	1.871429	11.111111	13.1	2.589258	26.80037
11	<i>Artemisia indica</i> Willdenow	21	16.25	0.0105	1.615385	2.063492	2.1	2.235003	6.398495
12	<i>Tinospora sp</i>	23	15	0.0115	1.916667	1.904762	2.3	2.651848	6.85661
13	<i>Asparagus sp</i>	21	8.75	0.0105	3	1.111111	2.1	4.150719	7.36183
14	<i>Stenochleana palustris</i>	5	2.5	0.0025	2.5	0.31746	0.5	3.458933	4.276393
15	<i>Heynea trijuga</i> Sims	21	16.25	0.0105	1.615385	2.063492	2.1	2.235003	6.398495
16	<i>Strobilanthus sp</i>	7	3.75	0.0035	2.333333	0.47619	0.7	3.228337	4.404528
17	<i>Urena lobata</i> Linnaeus	24	20	0.012	1.5	2.539683	2.4	2.07536	7.015042
18	<i>Flemingia sp</i>	5	2.5	0.0025	2.5	0.31746	0.5	3.458933	4.276393
19	<i>Litsea monopetala</i> (Roxburgh)Persoon	7	5	0.0035	1.75	0.634921	0.7	2.421253	3.756174
20	<i>Leea alata</i> Edgeworth	5	2.5	0.0025	2.5	0.31746	0.5	3.458933	4.276393
21	<i>Morinda sp</i>	64	58.75	0.032	1.361702	7.460317	6.4	1.884014	15.74433
22	<i>Mikania micrantha</i> Kunth	81	80	0.0405	1.265625	10.15873	8.1	1.751085	20.00981
23	<i>Piper sp</i>	67	53.75	0.0335	1.55814	6.825397	6.7	2.1558	15.6812
24	<i>Cestrum aruntiaceum</i> Lindley	7	6.25	0.0035	1.4	0.793651	0.7	1.937002	3.430653
25	<i>Calamus erectus</i> Roxburgh	21	18.75	0.0105	1.4	2.380952	2.1	1.937002	6.417955
26	<i>Coffea benglensis</i> Schutles	31	23.75	0.0155	1.631579	3.015873	3.1	2.257409	8.373282
27	<i>Malotus philippensis</i> (Lamarck)Mueller	21	15	0.0105	1.75	1.904762	2.1	2.421253	6.426015
28	<i>Mucuna macrocarpa</i> Wallich	13	8.75	0.0065	1.857143	1.111111	1.3	2.569493	4.980604
29	<i>Tylophora sp</i>	31	31.25	0.0155	1.24	3.968254	3.1	1.715631	8.783885

30	<i>Bauhinia vahlii</i> Wight & Arnott	10	3.75	0.005	3.333333	0.47619	1	4.61191	6.088101
31	<i>Acacia pennata</i> (Linnaeus) Willdenow	5	2.5	0.0025	2.5	0.31746	0.5	3.458933	4.276393
32	<i>Sida acuta</i> Burman f.	6	3.75	0.003	2	0.47619	0.6	2.767146	3.843337
33	<i>Solanum torvum</i> Swartz	5	5	0.0025	1.25	0.634921	0.5	1.729466	2.864387
34	<i>Mimosa himalayana</i> Gamble	3	1.25	0.0015	3	0.15873	0.3	4.150719	4.609449
35	<i>Celtis tetrandra</i> Roxburgh	2	1.25	0.001	2	0.15873	0.2	2.767146	3.125876
36	<i>Woodfordia fruticosa</i> (Linnaeus)Kurz	1	1.25	0.0005	1	0.15873	0.1	1.383573	1.642303
37	<i>Quercus glauca</i> Thunberg	1	1.25	0.0005	1	0.15873	0.1	1.383573	1.642303
38	<i>Dioscorea sp</i>	56	41.25	0.028	1.69697	5.238095	5.6	2.347882	13.18598
	Total	1000	787.5	0.5	72.27663	100	100	100	300

**Table 2:Sub-tropical forest .**

Sl.No.	Name	Indiv	FQ	D/m <sup>2</sup>	AB	RF	RD	RA	IVI
1	<i>Aconogonum molle</i> (D.Don)Hara	80	56.25	0.04	1.777778	3.385012	5.669738	2.402435	11.45719
2	<i>Argyreia hookeri</i> Clarke	21	42.85714	0.0105	2.333333	2.579057	1.488306	3.153196	7.220559
3	<i>Artemisia dubia</i> Besser	41	75.60976	0.0205	1.322581	4.550043	2.905741	1.787296	9.24308
4	<i>Bambusa nutans</i>	45	77.77778	0.0225	1.285714	4.680511	3.189227	1.737475	9.607214
5	<i>Cassia floribunda</i> Cavanilles	21	80.95238	0.0105	1.235294	4.871552	1.488306	1.669339	8.029197
6	<i>Desmodium heterocarpon</i> (Linnaeus)DC	12	33.33333	0.006	3	2.005933	0.850461	4.054109	6.910503
7	<i>Dioscorea hispida</i> Dennstedt	125	32	0.0625	3.125	1.925696	8.858965	4.223031	15.00769
8	<i>Eupatorium adenophorum</i> Sprengel	130	33.07692	0.065	3.023256	1.990503	9.213324	4.085537	15.28936
9	<i>Eupatorium odoratum</i> Linnaeus	45	55.55556	0.0225	1.8	3.343222	3.189227	2.432466	8.964915
10	<i>Fleminga stricta</i> Roxburgh	13	53.84615	0.0065	1.857143	3.240354	0.921332	2.509687	6.671373
11	<i>Lantana camara</i> Linnaeus	101	86.13861	0.0505	1.16092	5.183649	7.158044	1.568832	13.91052
12	<i>Maesa macrophylla</i> (Wallich)A.DC	21	66.66667	0.0105	1.5	4.011866	1.488306	2.027055	7.527227
13	<i>Melastoma malabathricum</i> Linnaeus	34	67.64706	0.017	1.478261	4.070864	2.409639	1.997677	8.47818

14	<i>Mikania micrantha</i> Kunth	101	61.38614	0.0505	1.629032	3.694095	7.158044	2.201425	13.05356
15	<i>Mussaendra roxburghii</i> Hoof.f.	14	42.85714	0.007	2.333333	2.579057	0.992204	3.153196	6.724457
16	<i>Phlogacanthus thyriformis</i> (Hardwicke)Mabberley	8	37.5	0.004	2.666667	2.256675	0.566974	3.603653	6.427301
17	<i>Smilax ovalifolia</i> Roxburgh	81	50.61728	0.0405	1.97561	3.046047	5.740609	2.669779	11.45644
18	<i>Solanum torvum</i> Swartz	56	62.5	0.028	1.6	3.761125	3.968816	2.162192	9.892133
19	<i>Stephania japonica</i> (Thunberg)Miers	36	72.22222	0.018	1.384615	4.346188	2.551382	1.871127	8.768698
20	<i>Thunbergia fragrans</i> Roxburgh	32	71.875	0.016	1.391304	4.325293	2.267895	1.880167	8.473355
21	<i>Tithonia diversifolia</i> (Hemsley)A.Gray	65	52.30769	0.0325	1.911765	3.147772	4.606662	2.583501	10.33794
22	<i>Croton caudatus</i> Geiseler	31	29.03226	0.0155	3.444444	1.747103	2.197023	4.654718	8.598845
23	<i>Calamus erectus</i> Roxburgh	46	54.34783	0.023	1.84	3.270543	3.260099	2.48652	9.017163
24	<i>Elatostema liniolatum</i> Wight	45	46.66667	0.0225	2.142857	2.808306	3.189227	2.895792	8.893326
25	<i>Bridelia retusa</i> (Linnaeus)Sprengel	45	6.666667	0.0225	15	0.401187	3.189227	20.27055	23.86096
26	<i>Strobilanthes</i> sp	15	53.33333	0.0075	1.875	3.209493	1.063076	2.533818	6.806387
27	<i>Rubus</i> sp	17	52.94118	0.0085	1.888889	3.185894	1.204819	2.552587	6.9433
28	<i>Mallotus philippensis</i> (Lamarck)Mueller	31	67.74194	0.0155	1.47619	4.076574	2.197023	1.994879	8.268476
29	<i>Camelia sinensis</i> Linnaeus	13	46.15385	0.0065	2.166667	2.777446	0.921332	2.927968	6.626746
30	<i>Hedychium</i> sp	35	42.85714	0.0175	2.333333	2.579057	2.48051	3.153196	8.212763
31	<i>Lygodium japonicum</i>	51	49.01961	0.0255	2.04	2.949902	3.614458	2.756794	9.321154
	Total	1411	1661.737	0.7055	73.99899	100	100	100	300

**Table 3: Temperate forest**

Sl. No.	Name	Indiv	FQ	D/M <sup>2</sup>	AB	RF	RD	RA	IVI
1	<i>Arundinaria racemosa</i> Munro	876	68.75	0.438	15.92727	10.67961	35.52311	12.76666	58.96938
2	<i>Zanthoxylum budrunga</i> (Roxburgh)DC	53	26.25	0.0265	2.52381	4.07767	2.14923	2.022984	8.249883



3	<i>Smilax ferox</i> wallich ex Kunth	39	12.5	0.0195	3.9	1.941748	1.581509	3.126082	6.649338
4	<i>Lithocarpus plachyphylla</i> (Kurz) Rehder	33	10	0.0165	4.125	1.553398	1.3382	3.306433	6.198031
5	<i>Urena lobata</i> Linnaeus	10	2.5	0.005	5	0.38835	0.405515	4.007798	4.801662
6	<i>Melastoma normale</i> D. Don	25	11.25	0.0125	2.777778	1.747573	1.013788	2.226554	4.987915
7	<i>Mahonia nepaulensis</i> (Linnaeus)Roth	5	5	0.0025	1.25	0.776699	0.202758	1.001949	1.981406
8	<i>Rubus niveus</i> Thunberg	20	7.5	0.01	3.333333	1.165049	0.81103	2.671865	4.647944
9	<i>Dichroa febrifuga</i> Loureiro	20	8.75	0.01	2.857143	1.359223	0.81103	2.29017	4.460423
10	<i>Rhododendron arboreum</i> Smith	11	6.25	0.0055	2.2	0.970874	0.446067	1.763431	3.180371
11	<i>Rubus moluccanus</i> Linnaeus	25	10	0.0125	3.125	1.553398	1.013788	2.504873	5.072059
12	<i>Rubus ellipticus</i> Smith	33	13.75	0.0165	3	2.135922	1.3382	2.404679	5.8788
13	<i>Rubus thomsonii</i> Focke	19	8.75	0.0095	2.714286	1.359223	0.770479	2.175662	4.305363
14	<i>Smilax rigida</i> Wallich ex Kunth	219	38.75	0.1095	7.064516	6.019417	8.880779	5.66263	20.56283
15	<i>Symplocos theifolia</i>	139	36.25	0.0695	4.793103	5.631068	5.636659	3.841958	15.10968
16	<i>Symplocos glomerata</i>	107	22.5	0.0535	5.944444	3.495146	4.339011	4.764826	12.59898
17	<i>Strobilanthus sp</i>	14	6.25	0.007	2.8	0.970874	0.567721	2.244367	3.782961
18	<i>Litsea elongata</i> (Ness)Hook.f.	7	3.75	0.0035	2.333333	0.582524	0.283861	1.870306	2.73669
19	<i>Urtica dioica</i> Linnaeus	59	20	0.0295	3.6875	3.106796	2.392539	2.955751	8.455085
20	<i>Tsuga dumosa</i> (Don)Eichler	29	5	0.0145	7.25	0.776699	1.175994	5.811306	7.763999
21	<i>Berberis angulosa</i> Hook.f. & Thompson	51	15	0.0255	4.25	2.330097	2.068127	3.406628	7.804852
22	<i>Flemingia sp</i>	5	2.5	0.0025	2.5	0.38835	0.202758	2.003899	2.595006
23	<i>Eupatorium odoratum</i> Linnaeus	2	1.25	0.001	2	0.194175	0.081103	1.603119	1.878397
24	<i>Viburnum erubescens</i> DC	3	2.5	0.0015	1.5	0.38835	0.121655	1.202339	1.712343
25	<i>Ilex sp</i>	3	2.5	0.0015	1.5	0.38835	0.121655	1.202339	1.712343
26	<i>Rhododendron grandis</i> Wight	17	7.5	0.0085	2.833333	1.165049	0.689376	2.271085	4.125509
27	<i>Hypericum sp</i>	6	3.75	0.003	2	0.582524	0.243309	1.603119	2.428952
28	<i>Cestrum sp</i>	6	2.5	0.003	3	0.38835	0.243309	2.404679	3.036337
29	<i>Eurya acuminata</i> DC	21	18.75	0.0105	1.4	2.912621	0.851582	1.122183	4.886386

30	<i>Pilea scripta</i> (Don)Weddell	43	21.25	0.0215	2.529412	3.300971	1.743715	2.027474	7.072159
31	<i>Acer campbelli</i> Hiern	56	53.75	0.028	1.302326	8.349515	2.270884	1.043891	11.66429
32	<i>Symlocus caudata</i> G.Don	45	36.25	0.0225	1.551724	5.631068	1.824818	1.243799	8.699685
33	<i>Smilax minutiflora</i> A.DC	351	83.75	0.1755	5.238806	13.00971	14.23358	4.199215	31.4425
34	<i>Symplocus phyllocalyx</i> Clarke	56	33.75	0.028	2.074074	5.242718	2.270884	1.662494	9.176096
35	<i>Lonicera hispida</i> Willdenow	33	13.75	0.0165	3	2.135922	1.3382	2.404679	5.8788
36	<i>Osbeckia chinensis</i> Linnaeus	25	21.25	0.0125	1.470588	3.300971	1.013788	1.178764	5.493522
	Total	2466	643.75	1.233	124.7568	100	100	99.99999	300

**Table 4: Sub alpine forest**

Sl.No.	Name	Indiv	FQ	D/m <sup>2</sup>	AB	RF	RD	RA	IVI
1	<i>Rhododendron lepidotum</i> Wallich ex G.Don	65	63.75	0.0325	1.27451	10.22044	9.530792	6.667433	26.41867
2	<i>Aconogonon molle</i> (Meisner)Reichenbach	32	30	0.016	1.333333	4.809619	4.692082	6.975161	16.47686
3	<i>Arundinaria racemosa</i> Munro	108	88.75	0.054	1.521127	14.22846	15.83578	7.957578	38.02181
4	<i>Daphne bholua</i> D.Don	37	38.75	0.0185	1.193548	6.212425	5.42522	6.243894	17.88154
5	<i>Paris sp</i>	33	32.5	0.0165	1.269231	5.210421	4.83871	6.639816	16.68895
6	<i>Rubus thomsonii</i> Focke	26	23.75	0.013	1.368421	3.807615	3.812317	7.158717	14.77865
7	<i>Rhododendron arboreum</i> Smith	40	41.25	0.02	1.212121	6.613226	5.865103	6.341055	18.81938
8	<i>Rhododendron falconeri</i> Hooker	24	20	0.012	1.5	3.206413	3.519062	7.847056	14.57253
9	<i>Hypericum sp</i>	43	30	0.0215	1.791667	4.809619	6.304985	9.372872	20.48748
10	<i>Vacciniumretusum</i> (Griffith)Hook.f.	74	66.25	0.037	1.396226	10.62124	10.85044	7.304178	28.77586
11	<i>Berberis wallichiana</i> DC	91	83.75	0.0455	1.358209	13.42685	13.34311	7.105294	33.87526
12	<i>Smilax rigida</i> Wallich ex Kunth	67	63.75	0.0335	1.313725	10.22044	9.824047	6.872585	26.91707
13	<i>Cirsum sp</i>	12	11.25	0.006	1.333333	1.803607	1.759531	6.975161	10.5383

14	<i>Rosa laevigata</i> Michx	30	30	0.015	1.25	4.809619	4.398827	6.539213	15.74766
	Total	682	623.75	0.341	19.11545	100	100	100	300

## APPENDIX C

Phytosociological table for Herbaceous layers in different forest in Darjiling hills

**Table 1: Tropical forest**

Sl. No.	Name	Indiv	FQ	D/m <sup>2</sup>	AB	RF	RD	RA	IVI
1	<i>Commelina sikkimensis</i> C.B Clarke	37	20	0.37	1.85	3.355705	3.000811	1.92083	8.277346
2	<i>Commelina suffruticosa</i> Blume	31	15	0.31	2.066667	2.516779	2.514193	2.145792	7.176764
3	<i>Nephrolepis cordifolia</i> Linnaeus	111	55	1.11	2.018182	9.228188	9.002433	2.095451	20.32607
4	<i>Drynaria coronans</i> (Wallich Ex Mettinus)T.Moore	12	9	0.12	1.333333	1.510067	0.973236	1.384382	3.867685
5	<i>Costus speciosus</i> (J.Koenig)Smith	13	4	0.13	3.25	0.671141	1.054339	3.374431	5.099911
6	<i>Cyanotis sp</i>	91	35	0.91	2.6	5.872483	7.380373	2.699545	15.9524
7	<i>Curcuma aromatica</i> Salisbury	6	2	0.06	3	0.33557	0.486618	3.11486	3.937048
8	<i>Pandanus nepalensis</i> St John	13	7	0.13	1.857143	1.174497	1.054339	1.928247	4.157082
9	<i>Elahoglossum stelligerum</i> (Wallich ex Baker)Moore	31	13	0.31	2.384615	2.181208	2.514193	2.475914	7.171315
10	<i>Diplazium esculentum</i> (retzius)Swartz	21	9	0.21	2.333333	1.510067	1.703163	2.422669	5.635899
11	<i>Eupatorium odoratum</i> Linnaeus	67	31	0.67	2.16129	5.201342	5.433901	2.244039	12.87928
12	<i>Cucruligo orchioides</i> Gaertner	21	8	0.21	2.625	1.342282	1.703163	2.725502	5.770947
13	<i>Carex stramentitia</i> Boott ex Boeckeler	34	17	0.34	2	2.852349	2.757502	2.076573	7.686424
14	<i>Adenostemma lavenia</i> (Linnaeus)Kuntze	21	14	0.21	1.5	2.348993	1.703163	1.55743	5.609586
15	<i>Strobilanthus capitata</i> (nees)Anderson	23	13	0.23	1.769231	2.181208	1.865369	1.836969	5.883546
16	<i>Pteris biaurita</i> Linnaeus	37	20	0.37	1.85	3.355705	3.000811	1.92083	8.277346
17	<i>Dioscorea pubera</i> Blume	34	9	0.34	3.777778	1.510067	2.757502	3.922416	8.189985
18	<i>Fleminga sp</i>	23	13	0.23	1.769231	2.181208	1.865369	1.836969	5.883546

19	<i>Polygala crotalarioides</i> DC	25	15	0.25	1.666667	2.516779	2.027575	1.730478	6.274831
20	<i>Liparis</i> sp	10	3	0.1	3.333333	0.503356	0.81103	3.460955	4.775341
21	<i>Tectaria polymorpha</i> (Wallich ex Hooker)Copeland	15	6	0.15	2.5	1.006711	1.216545	2.595717	4.818973
22	<i>Stephania japonica</i> (Thunberg)Miers	2	1	0.02	2	0.167785	0.162206	2.076573	2.406564
23	<i>Dryopteris marginata</i> (Clarke)Christ	20	7	0.2	2.857143	1.174497	1.62206	2.966533	5.76309
24	<i>Zeuxine</i> sp	34	19	0.34	1.789474	3.187919	2.757502	1.857987	7.803408
25	<i>Thelypteris pyrrorhachis</i> (Kunze)Nayar & Kaur	35	20	0.35	1.75	3.355705	2.838605	1.817002	8.011311
26	<i>Tylophora</i> sp	41	17	0.41	2.411765	2.852349	3.325223	2.504103	8.681675
27	<i>Bolbitis heteroclita</i> (Pr.)Ching	34	20	0.34	1.7	3.355705	2.757502	1.765087	7.878294
28	<i>Ageratum conyzoides</i> Linnaeus	91	45	0.91	2.022222	7.550336	7.380373	2.099646	17.03035
29	<i>Vigna pillosa</i> (willdenow)Baker	32	21	0.32	1.52381	3.52349	2.595296	1.582151	7.700937
30	<i>Urena lobata</i> Linnaeus	21	13	0.21	1.615385	2.181208	1.703163	1.677232	5.561603
31	<i>Cyperus cyperoides</i> (Retzius)Kuntze	86	40	0.86	2.15	6.711409	6.974858	2.232316	15.91858
32	<i>Alpinia nigra</i> (Gaertner)B.L Burt	12	8	0.12	1.5	1.342282	0.973236	1.55743	3.872948
33	<i>Butea parviflora</i> Roxburgh	11	7	0.11	1.571429	1.174497	0.892133	1.631593	3.698223
34	<i>Crotalaria albida</i> Roth	21	9	0.21	2.333333	1.510067	1.703163	2.422669	5.635899
35	<i>Leea aequata</i> Linnaeus	3	1	0.03	3	0.167785	0.243309	3.11486	3.525954
36	<i>Digitaria ciliaris</i> (Retzius)Koel	13	5	0.13	2.6	0.838926	1.054339	2.699545	4.59281
37	<i>Saccharum arundinaceum</i> Retzius	17	4	0.17	4.25	0.671141	1.378751	4.412718	6.46261
38	<i>Hedychium</i> sp	11	5	0.11	2.2	0.838926	0.892133	2.284231	4.01529
39	<i>Curculigo capitulata</i> (Loureiro)Kuntze	1	1	0.01	1	0.167785	0.081103	1.038287	1.287175
40	<i>Chloris gayana</i> Kunth	5	2	0.05	2.5	0.33557	0.405515	2.595717	3.336802
41	<i>Argyria roxburghii</i> Choisy	4	3	0.04	1.333333	0.503356	0.324412	1.384382	2.21215
42	<i>Vermonia cinerea</i> (Linnaeus)Less	18	9	0.18	2	1.510067	1.459854	2.076573	5.046494
43	<i>Vermonia attenuata</i> DC	10	4	0.1	2.5	0.671141	0.81103	2.595717	4.077887
44	<i>Pteris venusta</i> Kunze	35	17	0.35	2.058824	2.852349	2.838605	2.137649	7.828603
	Total	1233	596	12.33	96.31252	100	100	100	300

**Table 2:Sub tropical Forest**

Sl.No.	Plant Name	Indiv	FQ	D/m <sup>2</sup>	AB	RF	RD	RA	IVI
1	<i>Aeschynanthus hookeri</i> C.B Clarke	23	10	0.23	2.3	0.953289	1.325648	2.98492	5.263857
2	<i>Ageratum houstonianum</i> Miller	170	80	1.7	2.125	7.626311	9.798271	2.757807	20.18239
3	<i>Begonia</i> sp	23	11	0.23	2.090909	1.048618	1.325648	2.713564	5.08783
4	<i>Bidens pilosa</i> Linnaeus	45	12	0.45	3.75	1.143947	2.59366	4.866717	8.604324
5	<i>Boehmaria</i> sp	21	9	0.21	2.333333	0.85796	1.210375	3.02818	5.096514
6	<i>Costus speciosus</i> (Koenig) Smith	33	13	0.33	2.538462	1.239276	1.902017	3.294393	6.435686
7	<i>Cyperus cyperoides</i> (Bentham)Moore	89	70	0.89	1.271429	6.673022	5.129683	1.650049	13.45275
8	<i>Drymaria cordata</i> (Linnaeus) Roemer & Schultes	34	10	0.34	3.4	0.953289	1.959654	4.412491	7.325434
9	<i>Drynaria coronans</i> (Wallich ex Mettinus) T.Moore	44	23	0.44	1.913043	2.192564	2.536023	2.482731	7.211319
10	<i>Leptochillus</i> sp	7	4	0.07	1.75	0.381316	0.403458	2.271135	3.055909
11	<i>Polypoidodes</i> sp	34	12	0.34	2.833333	1.143947	1.959654	3.677075	6.780676
12	<i>Drynaria mollis</i> Beddome	10	5	0.1	2	0.476644	0.576369	2.595583	3.648596
13	<i>Elastostema lineolatum</i> Wight	45	23	0.45	1.956522	2.192564	2.59366	2.539157	7.325381
14	<i>Globba racemosa</i> Smith	23	15	0.23	1.533333	1.429933	1.325648	1.989947	4.745528
15	<i>Equisetum arvense</i> Linnaeus	19	13	0.19	1.461538	1.239276	1.095101	1.896772	4.231148
16	<i>Hedychium</i> sp	46	32	0.46	1.4375	3.050524	2.651297	1.865575	7.567396
17	<i>Imaptiens</i> sp	89	46	0.89	1.934783	4.385129	5.129683	2.510944	12.02576
18	<i>Nephrolepis cordifolia</i> Linnaeus	159	84	1.59	1.892857	8.007626	9.164265	2.456534	19.62843
19	<i>Oxalis corniculata</i> Linnaeus	56	39	0.56	1.435897	3.717827	3.227666	1.863495	8.808987
20	<i>Pepormia</i> sp	34	26	0.34	1.307692	2.478551	1.959654	1.697112	6.135317
21	<i>Persicaria chinensis</i> (Linnaeus)H.Gross	59	40	0.59	1.475	3.813155	3.400576	1.914242	9.127974
22	<i>Phymatosorus cupsidatus</i> D.Don	11	4	0.11	2.75	0.381316	0.634006	3.568926	4.584247
23	<i>Pouzolzia hirta</i> (Blume)Hasskarl	34	21	0.34	1.619048	2.001907	1.959654	2.101186	6.062747

24	<i>Piper sp</i>	31	14	0.31	2.214286	1.334604	1.786744	2.873681	5.995029
25	<i>Pteris biaurita</i> Linnaeus	23	17	0.23	1.352941	1.620591	1.325648	1.755835	4.702075
26	<i>Rubia sp</i>	45	31	0.45	1.451613	2.955195	2.59366	1.883891	7.432746
27	<i>Setaria palmifolia</i> (J.Koening)Stapf	34	27	0.34	1.259259	2.57388	1.959654	1.634256	6.16779
28	<i>Selaginella sp</i>	31	23	0.31	1.347826	2.192564	1.786744	1.749197	5.728505
29	<i>Strobilanthus himalayana</i> J.R.I wood	17	12	0.17	1.416667	1.143947	0.979827	1.838538	3.962311
30	<i>Carex sp</i>	45	37	0.45	1.216216	3.527169	2.59366	1.578395	7.699224
31	<i>Dryopteris marginata</i> (Clarke) Christ	13	7	0.13	1.857143	0.667302	0.74928	2.410184	3.826766
32	<i>Tectaria codunata</i> (Wall. Ex Hook. Et Grev.) C.Chr	17	10	0.17	1.7	0.953289	0.979827	2.206245	4.139361
33	<i>Tectaria polymorpha</i> (Wallich ex Hooker)Copeland	9	4	0.09	2.25	0.381316	0.518732	2.92003	3.820078
34	<i>Elaphoglossum stelerigium</i> (Wallich ex Baker)Moore ex Saloman	35	25	0.35	1.4	2.383222	2.017291	1.816908	6.217421
35	<i>Sida rhombifolia</i> Linnaeus	17	13	0.17	1.307692	1.239276	0.979827	1.697112	3.916214
36	<i>Urena lobata</i> Linnaeus	19	11	0.19	1.727273	1.048618	1.095101	2.24164	4.385358
37	<i>Urtica dioica</i> Linnaeus	34	23	0.34	1.478261	2.192564	1.959654	1.918474	6.070693
38	<i>Triumfetta rhomboidea</i> Jacquin	21	17	0.21	1.235294	1.620591	1.210375	1.603154	4.43412
39	<i>Phaseolus coccineus</i> Linnaeus	37	27	0.37	1.37037	2.57388	2.132565	1.778455	6.4849
40	<i>Persicaria microcephalla</i> (D.Don)H.Gross	31	23	0.31	1.347826	2.192564	1.786744	1.749197	5.728505
41	<i>Rhynchoglossum obliquum</i> Blume	45	33	0.45	1.363636	3.145853	2.59366	1.769715	7.509229
42	<i>Selaginella monospora</i> Spring	67	46	0.67	1.456522	4.385129	3.861671	1.890261	10.13706
43	<i>Saccharum arundinaceum</i> Retzius	56	47	0.56	1.191489	4.480458	3.227666	1.546305	9.254428
	Total	1735	1049	17.35	77.05399	100	100	100	300

**Table 3: Temperate Forest**

Sl.No.	Name	Indiv	FQ	D/m <sup>2</sup>	AB	RF	RD	RA	IVI
1	<i>Ajuga lobata</i> Don	81	75	0.81	1.08	11.66407	5.882353	0.846883	18.39331
2	<i>Pteris sp</i>	53	21	0.53	2.52381	3.265941	3.848947	1.979049	9.093937

3	<i>Ainsliaea aptere</i> DC.	39	10	0.39	3.9	1.55521	2.832244	3.05819	7.445644
4	<i>Viola sikkimensis</i> Becker	33	8	0.33	4.125	1.244168	2.396514	3.234624	6.875306
5	<i>Dryopteris subimpressa</i> Loyal	10	2	0.1	5	0.311042	0.726216	3.920757	4.958015
6	<i>fragaria nubicola</i> (Hook.f.)Lacaita	25	9	0.25	2.777778	1.399689	1.815541	2.178198	5.393428
7	<i>Hemiphragma</i> sp	5	4	0.05	1.25	0.622084	0.363108	0.980189	1.965381
8	<i>Cyperus squarrosus</i> Linnaeus	20	6	0.2	3.333333	0.933126	1.452433	2.613838	4.999397
9	<i>Oleandra wallichii</i> (Hooker)Presl	20	7	0.2	2.857143	1.088647	1.452433	2.240432	4.781512
10	<i>Ophiopogon intermedius</i> D.Don	11	5	0.11	2.2	0.777605	0.798838	1.725133	3.301576
11	<i>Polystichum lentum</i> (Don)Moore	25	8	0.25	3.125	1.244168	1.815541	2.450473	5.510182
12	<i>Potentilla polyphylla</i> Lehmann	33	11	0.33	3	1.710731	2.396514	2.352454	6.459699
13	<i>Plantago</i> sp	19	7	0.19	2.714286	1.088647	1.379811	2.128411	4.596869
14	<i>Gallium elegans</i> Roxburgh	143	56	1.43	2.553571	8.709176	10.38489	2.002387	21.09646
15	<i>Rubia</i> sp	112	81	1.12	1.382716	12.5972	8.133624	1.084259	21.81508
16	<i>Trifolium repens</i> Linnaeus	107	63	1.07	1.698413	9.797823	7.770516	1.331813	18.90015
17	<i>Smilax lanceifolia</i> Roxburgh	14	5	0.14	2.8	0.777605	1.016703	2.195624	3.989932
18	<i>Swertia bimaculata</i> (Siebold&Zuccarini)Clarke	7	3	0.07	2.333333	0.466563	0.508351	1.829687	2.804601
19	<i>Stellaria patens</i> D.Don	59	16	0.59	3.6875	2.488336	4.284677	2.891558	9.664571
20	<i>Hymenophyllum</i> sp	29	4	0.29	7.25	0.622084	2.106028	5.685097	8.413209
21	<i>Ranunculus</i> sp	51	12	0.51	4.25	1.866252	3.703704	3.332643	8.902599
22	<i>Anaphilis busua</i> (Don)D.C	5	2	0.05	2.5	0.311042	0.363108	1.960378	2.634529
23	<i>Gentiana capitata</i> D.Don	2	1	0.02	2	0.155521	0.145243	1.568303	1.869067
24	<i>Selaginella</i> sp	3	2	0.03	1.5	0.311042	0.217865	1.176227	1.705134
25	<i>Tupistra clarkei</i> Hook.f.	3	2	0.03	1.5	0.311042	0.217865	1.176227	1.705134
26	<i>Bulbophyllum</i> sp	17	6	0.17	2.833333	0.933126	1.234568	2.221762	4.389456
27	<i>Viola serpens</i> Roxburgh	6	3	0.06	2	0.466563	0.43573	1.568303	2.470596
28	<i>Malaxis</i> sp	6	2	0.06	3	0.311042	0.43573	2.352454	3.099226
29	<i>Scutellaria violacea</i> Bentham	10	4	0.1	2.5	0.622084	0.726216	1.960378	3.308679
30	<i>Centella asiatica</i> (Linnaeus)Urban	71	21	0.71	3.380952	3.265941	5.156137	2.651178	11.07326

31	<i>Plagiogyra pycnophylla</i> (Kuntze)Mett	11	4	0.11	2.75	0.622084	0.798838	2.156416	3.577338
32	<i>Permanea cyatheoides</i> D.Don	7	2	0.07	3.5	0.311042	0.508351	2.74453	3.563923
33	<i>Elostema obtusum</i> Weddell	35	15	0.35	2.333333	2.332815	2.541757	1.829687	6.704259
34	<i>Globba hookeri</i> Baker	7	3	0.07	2.333333	0.466563	0.508351	1.829687	2.804601
35	<i>Pilea ternifolia</i> Weddell	11	6	0.11	1.833333	0.933126	0.798838	1.437611	3.169575
36	<i>Huperzia serrata</i> (Thunberg)Trevisan	33	7	0.33	4.714286	1.088647	2.396514	3.696714	7.181875
38	<i>Swertia nervosa</i> (Don)Clarke	21	17	0.21	1.235294	2.643857	1.525054	0.968658	5.137569
39	<i>Athyrium clarkei</i> Beddome	11	4	0.11	2.75	0.622084	0.798838	2.156416	3.577338
40	<i>Rubus calycinus</i> D.Don	21	18	0.21	1.166667	2.799378	1.525054	0.914843	5.239276
41	<i>Deparia petersenii</i> (Kunze)Kato	35	27	0.35	1.296296	4.199067	2.541757	1.016493	7.757317
42	<i>Habenaria</i> sp	17	13	0.17	1.307692	2.021773	1.234568	1.025429	4.28177
43	<i>Clematis buchania</i> DC	8	3	0.08	2.666667	0.466563	0.580973	2.09107	3.138606
44	<i>Ceropegia longifolia</i> Wallich	19	7	0.19	2.714286	1.088647	1.379811	2.128411	4.596869
45	<i>Aleuritopteris formosona</i> (Hayata)Tagawa	34	24	0.34	1.416667	3.732504	2.469136	1.110881	7.312521
46	<i>Lyndsia odorata</i> Roxburgh	21	7	0.21	3	1.088647	1.525054	2.352454	4.966156
47	<i>Poa annua</i> Linnaeus	41	21	0.41	1.952381	3.265941	2.977487	1.530962	7.77439
48	<i>Monachosorum henryi</i> Christ	5	2	0.05	2.5	0.311042	0.363108	1.960378	2.634529
49	<i>Lycopodium japonicum</i> Thunberg	21	7	0.21	3	1.088647	1.525054	2.352454	4.966156
	Total	1377	643	13.77	127.5264	100	100	100	300

**Table 4: Sub –alpine Forest**

Sl.No	NAME	Indiv	FQ	D/ m <sup>2</sup>	AB	RF	RD	RA	IVI
1	<i>Anaphalis contorta</i> Hook.f.	43	22	0.43	1.9545455	3.9497307	4.2701092	4.270109	12.489949
2	<i>Aconitum violaceum</i> Jacquemont ex Stapf	15	10	0.15	0.6818182	1.7953321	1.489573	1.4895729	4.774478
3	<i>Aconogonum campanulatum</i> (Hooker)Hara	41	31	0.41	1.8636364	5.5655296	4.0714995	4.0714993	13.708528
4	<i>Anaphilis triplinervis</i> (Sims)Clarke	57	43	0.57	2.5909091	7.7199282	5.6603774	5.660377	19.040683



5	<i>Dryopteris serratodentata</i> (Beddome)Hayata	21	13	0.21	0.9545455	2.3339318	2.0854022	2.0854021	6.504736
6	<i>Ligularia sp</i>	9	6	0.09	0.4090909	1.0771993	0.8937438	0.8937437	2.8646868
7	<i>Cyperus squarrosus</i> Linnaeus	3	2	0.03	0.1363636	0.3590664	0.2979146	0.2979146	0.9548956
8	<i>Woodsia elongata</i> Hooker	34	21	0.34	1.5454545	3.7701975	3.3763654	3.3763652	10.522928
9	<i>Sanicula elata</i> D. Don	5	3	0.05	0.2272727	0.5385996	0.4965243	0.4965243	1.5316483
10	<i>Deparia allantodoides</i> (Beddome)Kato	21	8	0.21	0.9545455	1.4362657	2.0854022	2.0854021	5.60707
11	<i>Polystichum thomsonii</i> (Hooker)Beddome	119	61	1.19	5.4090909	10.951526	11.817279	11.817278	34.586083
12	<i>Lycopodium japonicum</i> Linnaeus	3	1	0.03	0.1363636	0.1795332	0.2979146	0.2979146	0.7753624
13	<i>Halenia elliptica</i> D.Don	6	3	0.06	0.2727273	0.5385996	0.5958292	0.5958292	1.730258
14	<i>Panax sp</i>	36	26	0.36	1.6363636	4.6678636	3.5749752	3.574975	11.817814
15	<i>Ajuga lobata</i> Don	13	7	0.13	0.5909091	1.2567325	1.2909633	1.2909632	3.8386589
16	<i>Anemone rupicola</i> Cambessedes	12	5	0.12	0.5454545	0.8976661	1.1916584	1.1916583	3.2809828
17	<i>Hymenophyllum exertum</i> Wallich ex Hooker	67	15	0.67	3.0454545	2.6929982	6.653426	6.6534256	15.99985
18	<i>Impatiens sp</i>	23	21	0.23	1.0454545	3.7701975	2.2840119	2.2840118	8.3382212
19	<i>Ainsliaea aptere</i> DC.	23	17	0.23	1.0454545	3.0520646	2.2840119	2.2840118	7.6200883
20	<i>Asplenium magnificum</i> (Ching)Bir	9	3	0.09	0.4090909	0.5385996	0.8937438	0.8937437	2.3260872
21	<i>Oxalis acetocella</i> Linnaeus	67	31	0.67	3.0454545	5.5655296	6.653426	6.6534256	18.872381
22	<i>Pilea sp</i>	34	21	0.34	1.5454545	3.7701975	3.3763654	3.3763652	10.522928
23	<i>Pimpinella tongloensis</i> Mukherjee	4	2	0.04	0.1818182	0.3590664	0.3972195	0.3972194	1.1535053
24	<i>Pichisermollodes malacodon</i> (Hook.) Fras.-Jenk.	55	35	0.55	2.5	6.2836625	5.4617676	5.4617673	17.207197
25	<i>Viola sikkimensis</i> Becker	4	2	0.04	0.1818182	0.3590664	0.3972195	0.3972194	1.1535053
26	<i>Primulla scultyi</i> Craib	5	3	0.05	0.2272727	0.5385996	0.4965243	0.4965243	1.5316483
27	<i>Potentilla polyphylla</i> Lehmann	13	5	0.13	0.5909091	0.8976661	1.2909633	1.2909632	3.4795925
28	<i>Rubus wardii</i> Merrill	5	2	0.05	0.2272727	0.3590664	0.4965243	0.4965243	1.3521151
29	<i>Arisaema griffithii</i> Schott	15	6	0.15	0.6818182	1.0771993	1.489573	1.4895729	4.0563452
30	<i>Poa annua</i> Linnaeus	33	17	0.33	1.5	3.0520646	3.2770606	3.2770604	9.6061856

31	<i>Meconopsis sp</i>	3	1	0.03	0.1363636	0.1795332	0.2979146	0.2979146	0.7753624
32	<i>Smilicenia sp</i>	21	17	0.21	0.9545455	3.0520646	2.0854022	2.0854021	7.2228689
33	<i>Biswarea tonglensis</i> (Clarke)Cogniaux	5	2	0.05	0.2272727	0.3590664	0.4965243	0.4965243	1.3521151
34	<i>Spiranthus sp</i>	10	3	0.1	0.4545455	0.5385996	0.9930487	0.9930486	2.5246969
35	<i>Gentiana capitata</i> D.Don	13	8	0.13	0.5909091	1.4362657	1.2909633	1.2909632	4.0181921
36	<i>Iris clarkei</i> Hooker	4	1	0.04	0.1818182	0.1795332	0.3972195	0.3972194	0.9739721
37	<i>Primulla scapigera</i> (Hook.f.)Craib	4	2	0.04	0.1818182	0.3590664	0.3972195	0.3972194	1.1535053
38	<i>Potentilla fulgens</i> Hooker	61	36	0.61	2.7727273	6.4631957	6.0575968	6.0575965	18.578389
39	<i>Pedicularis fu</i> Ruracea Bentahm	10	3	0.1	0.4545455	0.5385996	0.9930487	0.9930486	2.5246969
40	<i>Botrychium dusenii</i> Alston	9	3	0.09	0.4090909	0.5385996	0.8937438	0.8937437	2.3260872
41	<i>Polystichum perscotianum</i> (Wallich ex Mettenius) T. Moore	37	27	0.37	1.6818182	4.8473968	3.67428	3.6742798	12.195957
42	<i>Viola hookeri</i> Thomsan	10	3	0.1	0.4545455	0.5385996	0.9930487	0.9930486	2.5246969
43	<i>Primulla edgeworthii</i> (Hooker)Pax	4	1	0.04	0.1818182	0.1795332	0.3972195	0.3972194	0.9739721
44	<i>Ophipogon intermedius</i> D. Don	21	8	0.21	0.9545455	1.4362657	2.0854022	2.0854021	5.60707
	Total	1007	557	10.07	45.772727	100	100	100	300