



APPENDICES

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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APPENDIX A

Quantitative Characteristics of Tree Species in Various Areas

Appendix Table 1-1 Quantitative characteristics of tree species in a series of pine plantations

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
14 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	144	11.979	5.08	22.92	52.20	80.21	26.74
2	<i>Glochidion sphaerogynum</i>	100.00	229	3.580	5.08	36.54	15.60	57.23	19.08
3	<i>Schima wallichii</i>	100.00	35	1.557	5.08	5.65	6.79	17.52	5.84
4	<i>Albizia chinensis</i>	100.00	21	1.025	5.08	3.32	4.47	12.87	4.29
5	<i>Phyllanthus emblica</i>	100.00	27	0.185	5.08	4.32	0.80	10.21	3.40
6	<i>Engelhardtia spicata</i>	100.00	21	0.311	5.08	3.32	1.36	9.76	3.25
7	<i>Phoebe lanceolata</i>	66.67	23	0.540	3.39	3.65	2.35	9.40	3.13
8	<i>Callicarpa arborea</i>	66.67	13	0.659	3.39	1.99	2.87	8.25	2.75
9	<i>Eriolaena candollei</i>	100.00	10	0.301	5.08	1.66	1.31	8.06	2.69
10	<i>Myrica esculenta</i>	66.67	8	0.374	3.39	1.33	1.63	6.35	2.12
11	<i>Syzygium cumini</i>	66.67	4	0.215	3.39	0.66	0.94	4.99	1.66
12	<i>Ficus ribes</i>	33.33	6	0.477	1.69	1.00	2.08	4.77	1.59
13	<i>Ternstroemia gymnanthera</i>	66.67	6	0.040	3.39	1.00	0.18	4.56	1.52
14	<i>Wendlandia tinctoria</i>	66.67	6	0.032	3.39	1.00	0.14	4.52	1.51
15	<i>Litsea monopetala</i>	66.67	4	0.062	3.39	0.66	0.27	4.32	1.44
16	<i>Colona flagrocarpa</i>	66.67	4	0.043	3.39	0.66	0.19	4.24	1.41
17	<i>Glochidion hirsutum</i>	66.67	4	0.032	3.39	0.66	0.14	4.19	1.40
18	<i>Castanopsis diversifolia</i>	33.33	4	0.388	1.69	0.66	1.69	4.05	1.35
19	<i>Ficus callosa</i>	33.33	2	0.388	1.69	0.33	1.69	3.72	1.24
20	<i>Archidendron clypearia</i>	33.33	2	0.267	1.69	0.33	1.16	3.19	1.06
21	<i>Syzygium albiflorum</i>	33.33	8	0.016	1.69	1.33	0.07	3.09	1.03
22	<i>Albizia odoratissima</i>	33.33	2	0.176	1.69	0.33	0.77	2.79	0.93
23	<i>Dolichandrone serrulata</i>	33.33	6	0.020	1.69	1.00	0.09	2.78	0.93
24	<i>Memecylon celastrinum</i>	33.33	4	0.031	1.69	0.66	0.13	2.49	0.83
25	<i>Horsfieldia tomentosa</i>	33.33	4	0.023	1.69	0.66	0.10	2.46	0.82
26	<i>Aporosa villosa</i>	33.33	4	0.021	1.69	0.66	0.09	2.45	0.82
27	<i>Litsea sp.</i>	33.33	2	0.093	1.69	0.33	0.41	2.43	0.81
28	<i>Glochidion acuminatum</i>	33.33	4	0.001	1.69	0.66	0.01	2.37	0.79
29	<i>Grewia laevigata</i>	33.33	2	0.070	1.69	0.33	0.31	2.33	0.78
30	<i>Eurya nitida</i>	33.33	2	0.023	1.69	0.33	0.10	2.13	0.71
31	<i>Flacourtia indica</i>	33.33	2	0.008	1.69	0.33	0.03	2.06	0.69
32	<i>Flemingia lineata</i>	33.33	2	0.004	1.69	0.33	0.02	2.04	0.68
33	<i>Congea tomentosa</i>	33.33	2	0.003	1.69	0.33	0.01	2.04	0.68
34	<i>Stereospermum neuranthum</i>	33.33	2	0.003	1.69	0.33	0.01	2.04	0.68
35	<i>Melastoma sanguineum</i>	33.33	2	0.001	1.69	0.33	0.00	2.03	0.68
36	<i>Micromelum minutum</i>	33.33	2	0.000	1.69	0.33	0.00	2.03	0.68
Total		1,967	627	22.95	100.00	100.00	100.00	300.00	100.00
15 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	75	4.82	3.06	4.82	29.23	37.11	12.37
2	<i>Glochidion acuminatum</i>	100.00	325	0.06	3.06	20.88	0.38	24.32	8.11
3	<i>Schima wallichii</i>	100.00	115	1.90	3.06	7.36	11.52	21.95	7.32
4	<i>Memecylon celastrinum</i>	100.00	169	0.20	3.06	10.84	1.21	15.12	5.04
5	<i>Castanopsis acuminatissima</i>	100.00	10	1.76	3.06	0.67	10.66	14.39	4.80
6	<i>Pyrenaria diospyricarpa</i>	100.00	138	0.22	3.06	8.84	1.33	13.23	4.41
7	<i>Lindera metcalfiana</i>	100.00	106	0.22	3.06	6.83	1.36	11.25	3.75

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
15 year-old pine plantation									
8	<i>Phoebe paniculata</i>	100.00	73	0.56	3.06	4.69	3.37	11.12	3.71
9	<i>Engelhardtia spicata</i>	100.00	23	0.97	3.06	1.47	5.86	10.40	3.47
10	<i>Ternstroemia gymnanthera</i>	100.00	17	0.98	3.06	1.07	5.92	10.06	3.35
11	<i>Melastoma sanguineum</i>	100.00	100	0.01	3.06	6.43	0.08	9.56	3.19
12	<i>Beilschmiedia gammieana</i>	66.67	17	0.94	2.04	1.07	5.68	8.79	2.93
13	<i>Glochidion sphaerogynum</i>	100.00	44	0.36	3.06	2.81	2.16	8.03	2.68
14	<i>Helicia nilagirica</i>	100.00	15	0.56	3.06	0.94	3.37	7.37	2.46
15	<i>Diospyros glandulosa</i>	100.00	56	0.08	3.06	3.61	0.47	7.15	2.38
16	<i>Trichilla connaroides</i>	100.00	19	0.34	3.06	1.20	2.07	6.33	2.11
17	<i>Dillenia aurea</i>	66.67	6	0.62	2.04	0.40	3.75	6.19	2.06
18	<i>Eurya nitida</i>	66.67	42	0.14	2.04	2.68	0.86	5.58	1.86
19	<i>Archidendron clypearia</i>	100.00	27	0.03	3.06	1.74	0.20	5.00	1.67
20	<i>Helicia terminalis</i>	66.67	10	0.28	2.04	0.67	1.70	4.41	1.47
21	<i>Castanopsis diversifolia</i>	66.67	15	0.17	2.04	0.94	1.01	3.99	1.33
22	<i>Wendlandia tinctoria</i>	66.67	13	0.16	2.04	0.80	0.96	3.81	1.27
23	<i>Albizia odoratissima</i>	100.00	6	0.01	3.06	0.40	0.08	3.55	1.18
24	<i>Blumea balsamifera</i>	66.67	21	0.00	2.04	1.34	0.02	3.40	1.13
25	<i>Stereospermum neuranthum</i>	33.33	4	0.32	1.02	0.27	1.92	3.20	1.07
26	<i>Elaeocarpus sphaericus</i>	33.33	8	0.23	1.02	0.54	1.40	2.95	0.98
27	<i>Symplocos henschelii</i>	66.67	8	0.06	2.04	0.54	0.33	2.91	0.97
28	<i>Magnolia henryi</i>	66.67	6	0.07	2.04	0.40	0.45	2.89	0.96
29	<i>Rhus javanica</i>	66.67	13	0.01	2.04	0.80	0.03	2.88	0.96
30	<i>Dalbergia assamica</i>	33.33	2	0.20	1.02	0.13	1.19	2.35	0.78
31	<i>Saurauia roxburghii</i>	33.33	10	0.04	1.02	0.67	0.24	1.93	0.64
32	<i>Eriolaena candollei</i>	33.33	2	0.07	1.02	0.13	0.42	1.58	0.53
33	<i>Micromelum minutum</i>	33.33	8	0.00	1.02	0.54	0.01	1.57	0.52
34	<i>Vitex canescens</i>	33.33	2	0.06	1.02	0.13	0.35	1.50	0.50
35	<i>Phoebe cathia</i>	33.33	4	0.03	1.02	0.27	0.17	1.45	0.48
36	<i>Lepisanthes rubiginosa</i>	33.33	6	0.00	1.02	0.40	0.01	1.43	0.48
37	<i>Quercus semiserrata</i>	33.33	4	0.01	1.02	0.27	0.06	1.35	0.45
38	<i>Phyllanthus emblica</i>	33.33	4	0.01	1.02	0.27	0.04	1.33	0.44
39	<i>Turpinia cochinchinensis</i>	33.33	2	0.011	1.02	0.13	0.07	1.22	0.41
40	<i>Mussaenda sanderiana</i>	33.33	2	0.001	1.02	0.13	0.005	1.16	0.39
41	<i>Fissistigma minuticalyx</i>	33.33	2	0.001	1.02	0.13	0.004	1.16	0.39
42	<i>Euodia roxburghiana</i>	33.33	2	0.0003	1.02	0.13	0.002	1.16	0.39
43	<i>Litsea monopetala</i>	33.33	2	0.0003	1.02	0.13	0.002	1.16	0.39
44	<i>Eurya acuminata</i>	33.33	2	0.0003	1.02	0.13	0.002	1.16	0.39
45	<i>Cinnamomum iners</i>	33.33	2	0.0003	1.02	0.13	0.002	1.16	0.39
46	<i>Milletia pachycarpa</i>	33.33	2	0.0001	1.02	0.13	0.001	1.16	0.39
47	<i>Litsea cubeba</i>	33.33	2	0.0001	1.02	0.13	0.001	1.16	0.39
48	<i>Ampelocissus martinii</i>	33.33	2	0.0001	1.02	0.13	0.001	1.16	0.39
49	<i>Arytera littoralis</i>	33.33	2	0.0001	1.02	0.13	0.001	1.16	0.39
50	<i>Myrica esculenta</i>	33.33	2	0.0001	1.02	0.13	0.001	1.16	0.39
51	<i>Litsea glutinosa</i>	33.33	2	0.0001	1.02	0.13	0.001	1.16	0.39
52	<i>Styrax benzoides</i>	33.33	2	0.0001	1.02	0.13	0.001	1.15	0.38
53	<i>Viburnum sambucinum</i>	33.33	2	0.0001	1.02	0.13	0.0004	1.15	0.38
54	<i>Buddleja asiatica</i>	33.33	2	0.00004	1.02	0.13	0.0002	1.15	0.38
Total		3,267	1,556	16.49	100.00	100.00	100.00	300.00	100.00
16 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	329	22.55	5.56	26.29	89.376	121.22	40.41
2	<i>Glochidion acuminatum</i>	66.67	408	0.05	3.70	32.61	0.214	36.53	12.18
3	<i>Melastoma sanguineum</i>	100.00	83	0.01	5.56	6.66	0.042	12.25	4.08
4	<i>Lindera metcalfiana</i>	100.00	73	0.04	5.56	5.82	0.150	11.53	3.84
5	<i>Schima wallichii</i>	100.00	29	0.68	5.56	2.33	2.698	10.58	3.53
6	<i>Litsea cubeba</i>	100.00	42	0.01	5.56	3.33	0.025	8.91	2.97
7	<i>Musa acuminata</i>	100.00	27	0.13	5.56	2.16	0.528	8.25	2.75
8	<i>Wendlandia tinctoria</i>	66.67	23	0.40	3.70	1.83	1.570	7.10	2.37
9	<i>Phoebe paniculata</i>	66.67	19	0.23	3.70	1.50	0.918	6.12	2.04

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
16 year-old pine plantation									
10	<i>Rauvolfia cambodiana</i>	66.67	21	0.00	3.70	1.66	0.011	5.38	1.79
11	<i>Engelhardtia spicata</i>	66.67	4	0.22	3.70	0.33	0.866	4.90	1.63
12	<i>Pyrenaria diospyricarpa</i>	66.67	13	0.00	3.70	1.00	0.008	4.71	1.57
13	<i>Colona flagrocarpa</i>	66.67	13	0.00	3.70	1.00	0.005	4.71	1.57
14	<i>Glochidion hirsutum</i>	66.67	10	0.03	3.70	0.83	0.118	4.65	1.55
15	<i>Archidendron clypearia</i>	66.67	10	0.00	3.70	0.83	0.016	4.55	1.52
16	<i>Blumea balsamifera</i>	33.33	29	0.00	1.85	2.33	0.008	4.19	1.40
17	<i>Eurya nitida</i>	33.33	19	0.01	1.85	1.50	0.033	3.38	1.13
18	<i>Canarium subulatum</i>	33.33	4	0.28	1.85	0.33	1.098	3.28	1.09
19	<i>Glochidion sphaerogynum</i>	33.33	13	0.10	1.85	1.00	0.382	3.23	1.08
20	<i>Trichilla connaroides</i>	33.33	17	0.00	1.85	1.33	0.013	3.20	1.07
21	<i>Phoebe cathia</i>	33.33	13	0.04	1.85	1.00	0.144	2.99	1.00
22	<i>Vitex peduncularis</i>	33.33	4	0.19	1.85	0.33	0.741	2.93	0.98
23	<i>Spatholobus parviflorus</i>	33.33	4	0.17	1.85	0.33	0.656	2.84	0.95
24	<i>Saurauia roxburghii</i>	33.33	10	0.01	1.85	0.83	0.034	2.72	0.91
25	<i>Ampelocissus martinii</i>	33.33	8	0.03	1.85	0.67	0.134	2.65	0.88
26	<i>Litsea monopetala</i>	33.33	8	0.01	1.85	0.67	0.025	2.54	0.85
27	<i>Eriolaena candollei</i>	33.33	2	0.04	1.85	0.17	0.174	2.19	0.73
28	<i>Viburnum sambucinum</i>	33.33	4	0.0005	1.85	0.33	0.002	2.19	0.73
29	<i>Mussaenda sanderiana</i>	33.33	4	0.0003	1.85	0.33	0.001	2.19	0.73
30	<i>Ficus callosa</i>	33.33	2	0.0013	1.85	0.17	0.005	2.02	0.67
31	<i>Diospyros glandulosa</i>	33.33	2	0.0003	1.85	0.17	0.001	2.02	0.67
32	<i>Artocarpus lacucha</i>	33.33	2	0.0003	1.85	0.17	0.001	2.02	0.67
33	<i>Micromelum minutum</i>	33.33	2	0.0002	1.85	0.17	0.001	2.02	0.67
Total		1,800	1,252	25.23	100.00	100.00	100.00	300.00	100.00
17 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	106	4.82	2.73	4.71	24.51	31.95	10.65
2	<i>Glochidion acuminatum</i>	100.00	396	0.07	2.73	17.54	0.35	20.62	6.87
3	<i>Schima wallichii</i>	100.00	98	1.81	2.73	4.34	9.20	16.27	5.42
4	<i>Engelhardtia spicata</i>	100.00	117	1.59	2.73	5.17	8.07	15.97	5.32
5	<i>Phyllanthus emblica</i>	100.00	181	0.71	2.73	8.03	3.62	14.38	4.79
6	<i>Melastoma sanguineum</i>	100.00	256	0.04	2.73	11.36	0.22	14.30	4.77
7	<i>Helicia nilagirica</i>	100.00	92	1.35	2.73	4.06	6.87	13.66	4.55
8	<i>Myrica esculenta</i>	100.00	33	1.52	2.73	1.48	7.74	11.95	3.98
9	<i>Castanopsis diversifolia</i>	100.00	58	1.19	2.73	2.59	6.04	11.35	3.78
10	<i>Wendlandia tinctoria</i>	100.00	77	0.83	2.73	3.42	4.21	10.36	3.45
11	<i>Diospyros glandulosa</i>	100.00	127	0.32	2.73	5.63	1.65	10.01	3.34
12	<i>Glochidion sphaerogynum</i>	100.00	115	0.39	2.73	5.08	1.98	9.79	3.26
13	<i>Blumea balsamifera</i>	100.00	92	0.01	2.73	4.06	0.07	6.86	2.29
14	<i>Pyrenaria diospyricarpa</i>	100.00	69	0.04	2.73	3.05	0.23	6.00	2.00
15	<i>Quercus semiserrata</i>	33.33	4	0.88	0.91	0.18	4.47	5.56	1.85
16	<i>Phoebe cathia</i>	66.67	10	0.57	1.82	0.46	2.90	5.18	1.73
17	<i>Castanopsis acuminatissima</i>	33.33	8	0.73	0.91	0.37	3.69	4.97	1.66
18	<i>Elaeocarpus sphaericus</i>	66.67	10	0.47	1.82	0.46	2.38	4.66	1.55
19	<i>Trichilla connaroides</i>	100.00	29	0.12	2.73	1.29	0.60	4.62	1.54
20	<i>Eurya nitida</i>	100.00	25	0.10	2.73	1.11	0.51	4.34	1.45
21	<i>Arytera littoralis</i>	33.33	71	0.03	0.91	3.14	0.13	4.18	1.39
22	<i>Archidendron clypearia</i>	100.00	15	0.08	2.73	0.65	0.40	3.78	1.26
23	<i>Syzygium albiflorum</i>	33.33	2	0.41	0.91	0.09	2.09	3.09	1.03
24	<i>Heterophragma sulfureum</i>	66.67	10	0.15	1.82	0.46	0.76	3.04	1.01
25	<i>Litsea glutinosa</i>	66.67	19	0.05	1.82	0.83	0.28	2.93	0.98
26	<i>Beilschmiedia gammieana</i>	33.33	19	0.22	0.91	0.83	1.11	2.85	0.95
27	<i>Artocarpus lacucha</i>	66.67	4	0.17	1.82	0.18	0.85	2.85	0.95
28	<i>Phoebe paniculata</i>	66.67	13	0.07	1.82	0.55	0.34	2.71	0.90
29	<i>Lithocarpus sp.</i>	66.67	6	0.11	1.82	0.28	0.58	2.68	0.89
30	<i>Albizia odoratissima</i>	66.67	13	0.06	1.82	0.55	0.29	2.67	0.89
31	<i>Eriolaena candollei</i>	66.67	8	0.09	1.82	0.37	0.44	2.62	0.87
32	<i>Lindera metcalfiana</i>	66.67	17	0.01	1.82	0.74	0.03	2.58	0.86

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
17 year-old pine plantation									
33	<i>Dillenia aurea</i>	66.67	10	0.05	1.82	0.46	0.28	2.56	0.85
34	<i>Memecylon celastrinum</i>	33.33	31	0.03	0.91	1.39	0.16	2.45	0.82
35	<i>Alstonia scholaris</i>	66.67	10	0.01	1.82	0.46	0.03	2.31	0.77
36	<i>Litsea sp.</i>	66.67	10	0.01	1.82	0.46	0.03	2.31	0.77
37	<i>Docynia indica</i>	66.67	6	0.02	1.82	0.28	0.08	2.17	0.72
38	<i>Euodia roxburghiana</i>	66.67	6	0.00	1.82	0.28	0.00	2.10	0.70
39	<i>Albizia chinensis</i>	33.33	2	0.16	0.91	0.09	0.81	1.81	0.60
40	<i>Ternstroemia gymnanthera</i>	33.33	6	0.05	0.91	0.28	0.23	1.42	0.47
41	<i>Garuga pinnata</i>	33.33	4	0.06	0.91	0.18	0.31	1.41	0.47
42	<i>Cinnamomum iners</i>	33.33	8	0.02	0.91	0.37	0.09	1.37	0.46
43	<i>Glochidion hirsutum</i>	33.33	6	0.03	0.91	0.28	0.17	1.36	0.45
44	<i>Symplocos sp.</i>	33.33	6	0.03	0.91	0.28	0.17	1.35	0.45
45	<i>Helicia terminalis</i>	33.33	2	0.06	0.91	0.09	0.30	1.30	0.43
46	<i>Erythrina subumbrans</i>	33.33	2	0.05	0.91	0.09	0.25	1.26	0.42
47	<i>Symplocos henschelii</i>	33.33	6	0.00	0.91	0.28	0.02	1.21	0.40
48	<i>Rhus succedanea</i>	33.33	4	0.02	0.91	0.18	0.10	1.19	0.40
49	<i>Ampelocissus martinii</i>	33.33	4	0.01	0.91	0.18	0.06	1.15	0.38
50	<i>Sapindus rarak</i>	33.33	4	0.01	0.91	0.18	0.05	1.14	0.38
51	<i>Kydia calycina</i>	33.33	2	0.02	0.91	0.09	0.12	1.12	0.37
52	<i>Catunaregam tomentosa</i>	33.33	4	0.00	0.91	0.18	0.02	1.11	0.37
53	<i>Xanthophyllum virens</i>	33.33	2	0.01	0.91	0.09	0.04	1.04	0.35
54	<i>Carallia brachiata</i>	33.33	2	0.01	0.91	0.09	0.03	1.04	0.35
55	<i>Ilex umbellulata</i>	33.33	2	0.002	0.91	0.09	0.01	1.01	0.34
56	<i>Anneslea fragrans</i>	33.33	2	0.002	0.91	0.09	0.01	1.01	0.34
57	<i>Saurauia roxburghii</i>	33.33	2	0.001	0.91	0.09	0.01	1.01	0.34
58	<i>Spondias bipinnata</i>	33.33	2	0.001	0.91	0.09	0.004	1.01	0.34
59	<i>Rhus javanica</i>	33.33	2	0.001	0.91	0.09	0.004	1.00	0.33
60	<i>Viburnum sambucinum</i>	33.33	2	0.0004	0.91	0.09	0.002	1.00	0.33
61	<i>Quercus brandisiana</i>	33.33	2	0.0001	0.91	0.09	0.001	1.00	0.33
Total		3,667	2,256	19.66	100.00	100.00	100.00	300.00	100.0
18 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	252	17.68	3.75	19.71	59.75	83.21	27.74
2	<i>Wendlandia tinctoria</i>	100.00	200	1.00	3.75	15.64	3.37	22.76	7.59
3	<i>Castanopsis purpurea</i>	100.00	113	1.84	3.75	8.79	6.20	18.75	6.25
4	<i>Dalbergia assamica</i>	100.00	142	0.74	3.75	11.08	2.50	17.32	5.77
5	<i>Glochidion sphaerogynum</i>	100.00	75	0.72	3.75	5.86	2.42	12.04	4.01
6	<i>Schima wallichii</i>	100.00	48	0.87	3.75	3.75	2.96	10.45	3.48
7	<i>Quercus vestita</i>	33.33	67	0.87	1.25	5.21	2.94	9.40	3.13
8	<i>Castanopsis diversifolia</i>	66.67	52	0.76	2.50	4.07	2.55	9.12	3.04
9	<i>Eriolaena candollei</i>	66.67	29	0.77	2.50	2.28	2.59	7.37	2.46
10	<i>Castanopsis acuminatissima</i>	66.67	27	0.66	2.50	2.12	2.25	6.86	2.29
11	<i>Ternstroemia gymnanthera</i>	100.00	23	0.30	3.75	1.79	1.02	6.56	2.19
12	<i>Syzygium albiflorum</i>	100.00	25	0.17	3.75	1.95	0.58	6.29	2.10
13	<i>Aporosa villosa</i>	100.00	23	0.14	3.75	1.79	0.46	6.00	2.00
14	<i>Phyllanthus emblica</i>	66.67	31	0.17	2.50	2.44	0.58	5.52	1.84
15	<i>Gluta obovata</i>	100.00	13	0.08	3.75	0.98	0.27	4.99	1.66
16	<i>Dillenia aurea</i>	100.00	8	0.06	3.75	0.65	0.19	4.59	1.53
17	<i>Eurya nitida</i>	66.67	17	0.12	2.50	1.30	0.41	4.21	1.40
18	<i>Archidendron clypearia</i>	66.67	10	0.20	2.50	0.81	0.67	3.98	1.33
19	<i>Helicia nilagirica</i>	66.67	10	0.19	2.50	0.81	0.65	3.96	1.32
20	<i>Diospyros glandulosa</i>	66.67	10	0.11	2.50	0.81	0.36	3.67	1.22
21	<i>Syzygium cumini</i>	66.67	6	0.13	2.50	0.49	0.45	3.44	1.15
22	<i>Dolichandrone serrulata</i>	66.67	6	0.08	2.50	0.49	0.27	3.26	1.09
23	<i>Phoebe lanceolata</i>	33.33	15	0.24	1.25	1.14	0.80	3.19	1.06
24	<i>Stereospermum neuranthum</i>	66.67	4	0.07	2.50	0.33	0.24	3.06	1.02
25	<i>Vaccinium sprengelii</i>	66.67	4	0.01	2.50	0.33	0.04	2.87	0.96

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
18 year-old pine plantation									
26	<i>Lithocarpus sootepensis</i>	33.33	13	0.17	1.25	0.98	0.57	2.80	0.93
27	<i>Albizia odoratissima</i>	33.33	4	0.20	1.25	0.33	0.69	2.27	0.76
28	<i>Acacia megaladena</i>	33.33	2	0.25	1.25	0.16	0.85	2.26	0.75
29	<i>Ficus ribes</i>	33.33	4	0.20	1.25	0.33	0.68	2.26	0.75
30	<i>Castanopsis tribuloides</i>	33.33	4	0.16	1.25	0.33	0.53	2.10	0.70
31	<i>Protium serratum</i>	33.33	4	0.07	1.25	0.33	0.23	1.80	0.60
32	<i>Erythrina subumbrans</i>	33.33	2	0.11	1.25	0.16	0.36	1.77	0.59
33	<i>Symplocos sp.</i>	33.33	4	0.05	1.25	0.33	0.18	1.76	0.59
34	<i>Magnolia henryi</i>	33.33	4	0.04	1.25	0.33	0.14	1.72	0.57
35	<i>Callicarpa arborea</i>	33.33	4	0.02	1.25	0.33	0.07	1.65	0.55
36	<i>Engelhardtia spicata</i>	33.33	2	0.07	1.25	0.16	0.22	1.64	0.55
37	<i>Elaeocarpus sphaericus</i>	33.33	2	0.06	1.25	0.16	0.21	1.62	0.54
38	<i>Anneslea fragrans</i>	33.33	2	0.06	1.25	0.16	0.20	1.61	0.54
39	<i>Pterospermum acerifolium</i>	33.33	2	0.05	1.25	0.16	0.18	1.59	0.53
40	<i>Docynia indica</i>	33.33	2	0.03	1.25	0.16	0.10	1.52	0.51
41	<i>Gmelina arborea</i>	33.33	2	0.02	1.25	0.16	0.08	1.49	0.50
42	<i>Symplocos racemosa</i>	33.33	2	0.02	1.25	0.16	0.05	1.47	0.49
43	<i>Colona flagrocarpa</i>	33.33	2	0.01	1.25	0.16	0.04	1.46	0.49
44	<i>Helicia terminalis</i>	33.33	2	0.01	1.25	0.16	0.04	1.46	0.49
45	<i>Schoepfia fragrans</i>	33.33	2	0.01	1.25	0.16	0.03	1.45	0.48
46	<i>Styrax benzoides</i>	33.33	2	0.01	1.25	0.16	0.02	1.43	0.48
Total		2,666.67	1,279	29.59	100.00	100.00	100.00	300.0	100.0
19 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	385	21.18	4.92	43.33	72.12	120.3	40.12
2	<i>Wendlandia tinctoria</i>	100.00	113	0.77	4.92	12.65	2.61	20.18	6.73
3	<i>Castanopsis diversifolia</i>	66.67	88	1.54	3.28	9.84	5.26	18.37	6.12
4	<i>Eriolaena candollei</i>	100.00	54	1.03	4.92	6.09	3.51	14.52	4.84
5	<i>Castanopsis purpurea</i>	100.00	25	1.06	4.92	2.81	3.61	11.34	3.78
6	<i>Albizia chinensis</i>	100.00	25	0.66	4.92	2.81	2.24	9.97	3.32
7	<i>Phyllanthus emblica</i>	100.00	31	0.21	4.92	3.51	0.70	9.13	3.04
8	<i>Ternstroemia gymnanthera</i>	66.67	10	0.41	3.28	1.17	1.41	5.86	1.95
9	<i>Glochidion sphaerogynum</i>	66.67	19	0.11	3.28	2.11	0.39	5.77	1.92
10	<i>Dolichandrone serrulata</i>	66.67	10	0.13	3.28	1.17	0.45	4.90	1.63
11	<i>Adinandra integerrima</i>	66.67	13	0.06	3.28	1.41	0.20	4.89	1.63
12	<i>Schima wallichii</i>	66.67	6	0.23	3.28	0.70	0.78	4.76	1.59
13	<i>Markhamia stipulata</i>	66.67	6	0.19	3.28	0.70	0.66	4.64	1.55
14	<i>Ficus ribes</i>	33.33	17	0.33	1.64	1.87	1.11	4.62	1.54
15	<i>Protium serratum</i>	66.67	8	0.11	3.28	0.94	0.37	4.58	1.53
16	<i>Syzygium cumini</i>	66.67	4	0.18	3.28	0.47	0.61	4.36	1.45
17	<i>Gluta obovata</i>	33.33	2	0.57	1.64	0.23	1.95	3.83	1.28
18	<i>Dillenia indica</i>	66.67	4	0.01	3.28	0.47	0.04	3.79	1.26
19	<i>Engelhardtia spicata</i>	66.67	4	0.01	3.28	0.47	0.03	3.78	1.26
20	<i>Horsfieldia tomentosa</i>	33.33	8	0.03	1.64	0.94	0.10	2.68	0.89
21	<i>Acacia megaladena</i>	33.33	6	0.05	1.64	0.70	0.18	2.52	0.84
22	<i>Phoebe lanceolata</i>	33.33	4	0.09	1.64	0.47	0.30	2.41	0.80
23	<i>Holarrhena pubescens</i>	33.33	6	0.01	1.64	0.70	0.04	2.38	0.79
24	<i>Arytera littoralis</i>	33.33	6	0.00	1.64	0.70	0.00	2.35	0.78
25	<i>Phoebe paniculata</i>	33.33	4	0.05	1.64	0.47	0.18	2.29	0.76
26	<i>Castanopsis acuminatissima</i>	33.33	2	0.11	1.64	0.23	0.37	2.24	0.75
27	<i>Aporusa wallichii</i>	33.33	4	0.01	1.64	0.47	0.03	2.14	0.71
28	<i>Litsea monopetala</i>	33.33	2	0.06	1.64	0.23	0.19	2.06	0.69

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
19 year-old pine plantation									
29	<i>Elaeocarpus sphaericus</i>	33.33	2	0.05	1.64	0.23	0.16	2.03	0.68
30	<i>Albizia odoratissima</i>	33.33	2	0.03	1.64	0.23	0.09	1.97	0.66
31	<i>Stereospermum neuranthum</i>	33.33	2	0.02	1.64	0.23	0.07	1.94	0.65
32	<i>Xanthophyllum virens</i>	33.33	2	0.02	1.64	0.23	0.07	1.94	0.65
33	<i>Pterospermum acerifolium</i>	33.33	2	0.01	1.64	0.23	0.05	1.92	0.64
34	<i>Dalbergia velutina</i>	33.33	2	0.01	1.64	0.23	0.04	1.91	0.64
35	<i>Helicia nilagirica</i>	33.33	2	0.01	1.64	0.23	0.03	1.91	0.64
36	<i>Syzygium albiflorum</i>	33.33	2	0.004	1.64	0.23	0.01	1.89	0.63
37	<i>Vaccinium sprengelii</i>	33.33	2	0.004	1.64	0.23	0.01	1.89	0.63
38	<i>Cinnamomum iners</i>	33.33	2	0.002	1.64	0.23	0.01	1.88	0.63
Total		2,033.33	890	29.36	100.00	100.00	100.00	300.00	100.00
20 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	413	24.31	11.11	75.86	93.30	180.27	60.09
2	<i>Bauhinia variegata</i>	100.00	35	0.71	11.11	6.51	2.74	20.37	6.79
3	<i>Eriolaena candollei</i>	100.00	17	0.58	11.11	3.07	2.22	16.40	5.47
4	<i>Arytera littoralis</i>	33.33	31	0.01	3.70	5.75	0.03	9.48	3.16
5	<i>Syzygium albiflorum</i>	66.67	6	0.12	7.41	1.15	0.47	9.02	3.01
6	<i>Castanopsis diversifolia</i>	66.67	6	0.10	7.41	1.15	0.39	8.95	2.98
7	<i>Dolichandrone serrulata</i>	66.67	4	0.01	7.41	0.77	0.04	8.21	2.74
8	<i>Litsea monopetala</i>	66.67	4	0.00	7.41	0.77	0.01	8.18	2.73
9	<i>Phyllanthus emblica</i>	33.33	6	0.09	3.70	1.15	0.35	5.20	1.73
10	<i>Syzygium cumini</i>	33.33	6	0.01	3.70	1.15	0.03	4.89	1.63
11	<i>Glochidion sphaerogynum</i>	33.33	2	0.10	3.70	0.38	0.37	4.45	1.48
12	<i>Aporosa villosa</i>	33.33	2	0.004	3.70	0.38	0.02	4.10	1.37
13	<i>Wendlandia tinctoria</i>	33.33	2	0.003	3.70	0.38	0.01	4.10	1.37
14	<i>Dillenia indica</i>	33.33	2	0.003	3.70	0.38	0.01	4.10	1.37
15	<i>Phoebe paniculata</i>	33.33	2	0.001	3.70	0.38	0.003	4.09	1.36
16	<i>Symplocos sp.</i>	33.33	2	0.0004	3.70	0.38	0.002	4.09	1.36
17	<i>Rhus javanica</i>	33.33	2	0.0003	3.70	0.38	0.001	4.09	1.36
Total		900.00	544	26.06	100.00	100.00	100.00	300.00	100.00
21 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	406.25	22.97	4.29	30.09	62.89	97.27	32.42
2	<i>Schima wallichii</i>	100.00	116.67	3.17	4.29	8.64	8.67	21.60	7.20
3	<i>Wendlandia tinctoria</i>	100.00	154.17	0.95	4.29	11.42	2.61	18.31	6.10
4	<i>Syzygium albiflorum</i>	66.67	114.58	1.17	2.86	8.49	3.19	14.54	4.85
5	<i>Ameslea fragrans</i>	100.00	50.00	1.65	4.29	3.70	4.52	12.51	4.17
6	<i>Elaeocarpus sphaericus</i>	100.00	43.75	0.70	4.29	3.24	1.92	9.45	3.15
7	<i>Aporosa villosa</i>	100.00	58.33	0.29	4.29	4.32	0.78	9.39	3.13
8	<i>Castanopsis acuminatissima</i>	66.67	29.17	1.34	2.86	2.16	3.66	8.68	2.89
9	<i>Buchanania lanzan</i>	100.00	20.83	0.36	4.29	1.54	0.99	6.82	2.27
10	<i>Glochidion sphaerogynum</i>	66.67	39.58	0.27	2.86	2.93	0.74	6.53	2.18
11	<i>Syzygium cumini</i>	100.00	18.75	0.24	4.29	1.39	0.66	6.33	2.11
12	<i>Castanopsis diversifolia</i>	66.67	10.42	0.96	2.86	0.77	2.62	6.25	2.08
13	<i>Lithocarpus elegans</i>	66.67	16.67	0.76	2.86	1.23	2.07	6.17	2.06
14	<i>Phyllanthus emblica</i>	66.67	29.17	0.04	2.86	2.16	0.12	5.14	1.71
15	<i>Engelhardtia spicata</i>	66.67	22.92	0.13	2.86	1.70	0.37	4.92	1.64
16	<i>Phoebe paniculata</i>	66.67	14.58	0.10	2.86	1.08	0.27	4.20	1.40
17	<i>Lithocarpus garrettianus</i>	33.33	25.00	0.27	1.43	1.85	0.75	4.03	1.34
18	<i>Diospyros glandulosa</i>	66.67	12.50	0.04	2.86	0.93	0.10	3.88	1.29
19	<i>Magnolia henryi</i>	66.67	6.25	0.07	2.86	0.46	0.18	3.50	1.17
20	<i>Albizia chinensis</i>	66.67	4.17	0.12	2.86	0.31	0.33	3.50	1.17
21	<i>Holarrhena pubescens</i>	66.67	4.17	0.07	2.86	0.31	0.18	3.35	1.12

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
21 year-old pine plantation									
22	<i>Bombax anceps</i>	33.33	22.92	0.05	1.43	1.70	0.13	3.26	1.09
23	<i>Tristania rufescens</i>	66.67	4.17	0.02	2.86	0.31	0.05	3.22	1.07
24	<i>Myrica esculenta</i>	33.33	18.75	0.06	1.43	1.39	0.16	2.98	0.99
25	<i>Styrax benzoides</i>	33.33	6.25	0.34	1.43	0.46	0.92	2.81	0.94
26	<i>Vitex peduncularis</i>	33.33	16.67	0.03	1.43	1.23	0.07	2.74	0.91
27	<i>Symplocos sp.</i>	33.33	12.50	0.02	1.43	0.93	0.06	2.42	0.81
28	<i>Rapanea porteri</i>	33.33	8.33	0.07	1.43	0.62	0.19	2.23	0.74
29	<i>Ampelocissus martinii</i>	33.33	10.42	0.00	1.43	0.77	0.01	2.21	0.74
30	<i>Dalbergia assamica</i>	33.33	8.33	0.01	1.43	0.62	0.03	2.07	0.69
31	<i>Canarium subulatum</i>	33.33	6.25	0.06	1.43	0.46	0.16	2.05	0.68
32	<i>Olea salicifolia</i>	33.33	6.25	0.02	1.43	0.46	0.04	1.93	0.64
33	<i>Stereospermum neuranthum</i>	33.33	6.25	0.01	1.43	0.46	0.04	1.93	0.64
34	<i>Xanthophyllum virens</i>	33.33	6.25	0.01	1.43	0.46	0.03	1.92	0.64
35	<i>Albizia odoratissima</i>	33.33	2.08	0.11	1.43	0.15	0.30	1.88	0.63
36	<i>Gmelina arborea</i>	33.33	4.17	0.03	1.43	0.31	0.08	1.82	0.61
37	<i>Eurya nitida</i>	33.33	4.17	0.02	1.43	0.31	0.05	1.79	0.60
38	<i>Canarium sp.</i>	33.33	2.08	0.01	1.43	0.15	0.02	1.60	0.53
39	<i>Dalbergia foliacea</i>	33.33	2.08	0.004	1.43	0.15	0.01	1.59	0.53
40	<i>Beilschmiedia gammieana</i>	33.33	2.08	0.003	1.43	0.15	0.01	1.59	0.53
41	<i>Engelhardtia serrata</i>	33.33	2.08	0.0004	1.43	0.15	0.001	1.58	0.53
Total		2,333.33	1,350	36.52	100.00	100.00	100.00	300.00	100.00
22 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	356	16.45	2.63	13.26	52.18	68.06	22.69
2	<i>Quercus brandisiana</i>	100.00	179	2.70	2.63	6.67	8.55	17.85	5.95
3	<i>Quercus vestita</i>	100.00	244	1.40	2.63	9.07	4.45	16.16	5.39
4	<i>Wendlandia tinctoria</i>	100.00	183	0.88	2.63	6.82	2.78	12.23	4.08
5	<i>Tristania rufescens</i>	100.00	188	0.63	2.63	6.98	2.00	11.61	3.87
6	<i>Lithocarpus polystachyus</i>	100.00	96	1.29	2.63	3.57	4.08	10.28	3.43
7	<i>Aporosa villosa</i>	100.00	127	0.40	2.63	4.73	1.26	8.62	2.87
8	<i>Phyllanthus emblica</i>	100.00	135	0.29	2.63	5.04	0.93	8.60	2.87
9	<i>Lithocarpus elegans</i>	100.00	102	0.64	2.63	3.80	2.04	8.47	2.82
10	<i>Castanopsis purpurea</i>	100.00	106	0.55	2.63	3.95	1.73	8.31	2.77
11	<i>Dalbergia cultrata</i>	100.00	75	0.81	2.63	2.79	2.58	8.00	2.67
12	<i>Lithocarpus sootepensis</i>	100.00	94	0.52	2.63	3.49	1.65	7.77	2.59
13	<i>Gluta obovata</i>	100.00	50	0.74	2.63	1.86	2.34	6.83	2.28
14	<i>Schima wallichii</i>	100.00	35	0.75	2.63	1.32	2.37	6.32	2.11
15	<i>Anneslea fragrans</i>	100.00	60	0.43	2.63	2.25	1.36	6.24	2.08
16	<i>Glochidion sphaerogynum</i>	100.00	73	0.25	2.63	2.71	0.81	6.15	2.05
17	<i>Vaccinium sprengelii</i>	66.67	71	0.21	2.63	2.64	0.68	5.95	1.98
18	<i>Craibiodendron stellatum</i>	100.00	65	0.25	2.63	2.40	0.80	5.83	1.94
19	<i>Glochidion hirsutum</i>	66.67	92	0.13	1.75	3.41	0.41	5.58	1.86
20	<i>Ternstroemia gymnanthera</i>	33.33	31	0.17	2.63	1.16	0.55	4.35	1.45
21	<i>Syzygium cumini</i>	66.67	40	0.14	1.75	1.47	0.43	3.66	1.22
22	<i>Pavetta tomentosa</i>	100.00	17	0.04	2.63	0.62	0.13	3.38	1.13
23	<i>Ficus ribes</i>	66.67	35	0.35	0.88	1.32	1.13	3.32	1.11
24	<i>Engelhardtia serrata</i>	33.33	27	0.08	1.75	1.01	0.25	3.01	1.00
25	<i>Terminalia chebula</i>	66.67	6	0.01	2.63	0.23	0.02	2.89	0.96
26	<i>Litsea sp.</i>	66.67	8	0.21	1.75	0.31	0.68	2.75	0.92
27	<i>Shorea roxburghii</i>	66.67	38	0.14	0.88	1.40	0.43	2.71	0.90
28	<i>Semecarpus albescens</i>	66.67	8	0.10	1.75	0.31	0.32	2.38	0.79
29	<i>Gardenia sootepensis</i>	66.67	8	0.06	1.75	0.31	0.19	2.25	0.75
30	<i>Castanopsis diversifolia</i>	66.67	6	0.06	1.75	0.23	0.18	2.16	0.72
31	<i>Lithocarpus lindleyanus</i>	66.67	8	0.03	1.75	0.31	0.09	2.16	0.72
32	<i>Viburnum sambucinum</i>	66.67	4	0.02	1.75	0.16	0.07	1.98	0.66
33	<i>Syzygium albiflorum</i>	66.67	4	0.02	1.75	0.16	0.07	1.98	0.66
34	<i>Vangueria pubescens</i>	33.33	4	0.00	1.75	0.16	0.02	1.92	0.64
35	<i>Antidesma acidum</i>	33.33	25	0.03	0.88	0.93	0.08	1.89	0.63

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
22 year-old pine plantation									
36	<i>Erythrina subumbrans</i>	33.33	2	0.18	0.88	0.08	0.58	1.53	0.51
37	<i>Dalbergia assamica</i>	33.33	6	0.06	0.88	0.23	0.20	1.31	0.44
38	<i>Pterospermum acerifolium</i>	33.33	6	0.05	0.88	0.23	0.15	1.26	0.42
39	<i>Celastrus paniculata</i>	33.33	8	0.02	0.88	0.31	0.05	1.24	0.41
40	<i>Stereospermum neuranthum</i>	33.33	4	0.05	0.88	0.16	0.15	1.18	0.39
41	<i>Quercus semiserrata</i>	33.33	6	0.02	0.88	0.23	0.06	1.17	0.39
42	<i>Ilex umbellulata</i>	33.33	2	0.06	0.88	0.08	0.20	1.16	0.39
43	<i>Spondias bipinnata</i>	33.33	4	0.04	0.88	0.16	0.11	1.15	0.38
44	<i>Eriolaena candollei</i>	33.33	2	0.05	0.88	0.08	0.17	1.13	0.38
45	<i>Canarium subulatum</i>	33.33	2	0.04	0.88	0.08	0.14	1.10	0.37
46	<i>Dillenia aurea</i>	33.33	4	0.02	0.88	0.16	0.05	1.08	0.36
47	<i>Diospyros glandulosa</i>	33.33	2	0.04	0.88	0.08	0.12	1.08	0.36
48	<i>Engelhardtia spicata</i>	33.33	4	0.01	0.88	0.16	0.03	1.06	0.35
49	<i>Gluta usitata</i>	33.33	4	0.01	0.88	0.16	0.02	1.05	0.35
50	<i>Antidesma sp.</i>	33.33	4	0.00	0.88	0.16	0.01	1.04	0.35
51	<i>Eurya nitida</i>	33.33	2	0.01	0.88	0.08	0.04	1.00	0.33
52	<i>Vitex peduncularis</i>	33.33	2	0.01	0.88	0.08	0.04	1.00	0.33
53	<i>Symplocos racemosa</i>	33.33	2	0.01	0.88	0.08	0.04	1.00	0.33
54	<i>Dolichandrone serrulata</i>	33.33	2	0.01	0.88	0.08	0.04	0.99	0.33
55	<i>Beilschmiedia gammieana</i>	33.33	2	0.01	0.88	0.08	0.03	0.98	0.33
56	<i>Catunaregam tomentosa</i>	33.33	2	0.01	0.88	0.08	0.02	0.98	0.33
57	<i>Ampelocissus martinii</i>	33.33	2	0.01	0.88	0.08	0.02	0.98	0.33
58	<i>Helicia nilagirica</i>	33.33	2	0.01	0.88	0.08	0.02	0.98	0.33
59	<i>Phoebe lanceolata</i>	33.33	2	0.005	0.88	0.08	0.01	0.97	0.32
60	<i>Xantolis cambodiana</i>	33.33	2	0.002	0.88	0.08	0.01	0.96	0.32
61	<i>Smilax ovalifolia</i>	33.33	2	0.001	0.88	0.08	0.002	0.96	0.32
Total		3,666.67	2,688	31.52	100.00	100.00	100.00	300.00	100.00
23 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	306	12.24	3.26	18.08	50.59	71.93	23.98
2	<i>Quercus vestita</i>	100.00	206	3.60	3.26	12.18	14.88	30.32	10.11
3	<i>Lithocarpus polystachyus</i>	100.00	113	2.68	3.26	6.64	11.07	20.97	6.99
4	<i>Tristania rufescens</i>	100.00	192	0.49	3.26	11.32	2.01	16.58	5.53
5	<i>Vaccinium sprengelii</i>	100.00	121	0.32	3.26	7.13	1.33	11.73	3.91
6	<i>Craibiodendron stellatum</i>	100.00	113	0.31	3.26	6.64	1.30	11.20	3.73
7	<i>Phyllanthus emblica</i>	100.00	106	0.35	3.26	6.27	1.46	10.99	3.66
8	<i>Lithocarpus sootepensis</i>	100.00	56	0.54	3.26	3.32	2.24	8.82	2.94
9	<i>Lithocarpus elegans</i>	100.00	48	0.48	3.26	2.83	1.97	8.06	2.69
10	<i>Schima wallichii</i>	33.33	23	0.66	3.26	1.35	2.72	7.33	2.44
11	<i>Quercus kingiana</i>	100.00	69	0.48	1.09	4.06	1.99	7.13	2.38
12	<i>Aporosa villosa</i>	100.00	40	0.15	3.26	2.34	0.61	6.21	2.07
13	<i>Castanopsis purpurea</i>	66.67	23	0.23	3.26	1.35	0.95	5.56	1.85
14	<i>Dalbergia assamica</i>	100.00	33	0.27	2.17	1.97	1.12	5.26	1.75
15	<i>Wendlandia tinctoria</i>	100.00	27	0.08	3.26	1.60	0.34	5.20	1.73
16	<i>Anneslea fragrans</i>	100.00	19	0.09	3.26	1.11	0.39	4.75	1.58
17	<i>Gluta obovata</i>	66.67	21	0.05	3.26	1.23	0.19	4.68	1.56
18	<i>Glochidion sphaerogynum</i>	100.00	17	0.03	3.26	0.98	0.12	4.37	1.46
19	<i>Lithocarpus fenestratus</i>	66.67	23	0.15	2.17	1.35	0.63	4.16	1.39
20	<i>Glochidion hirsutum</i>	66.67	13	0.02	3.26	0.74	0.09	4.09	1.36
21	<i>Albizia odoratissima</i>	66.67	8	0.15	2.17	0.49	0.61	3.27	1.09
22	<i>Symplocos racemosa</i>	66.67	8	0.02	2.17	0.49	0.07	2.73	0.91
23	<i>Syzygium cumini</i>	66.67	6	0.05	2.17	0.37	0.19	2.73	0.91
24	<i>Gluta usitata</i>	66.67	8	0.01	2.17	0.49	0.06	2.72	0.91
25	<i>Antidesma acidum</i>	66.67	6	0.01	2.17	0.37	0.02	2.56	0.85
26	<i>Terminalia chebula</i>	33.33	4	0.00	2.17	0.25	0.01	2.43	0.81
27	<i>Protium serratum</i>	33.33	6	0.19	1.09	0.37	0.80	2.26	0.75
28	<i>Styrax benzoides</i>	33.33	8	0.07	1.09	0.49	0.30	1.88	0.63
29	<i>Vangueria pubescens</i>	33.33	8	0.07	1.09	0.49	0.29	1.87	0.62
30	<i>Stereospermum neuranthum</i>	33.33	2	0.15	1.09	0.12	0.63	1.84	0.61

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
23 year-old pine plantation									
31	<i>Clausena wallichii</i>	33.33	6	0.05	1.09	0.37	0.21	1.67	0.56
32	<i>Colona flagrocarpa</i>	33.33	8	0.01	1.09	0.49	0.04	1.61	0.54
33	<i>Celastrus paniculata</i>	33.33	6	0.02	1.09	0.37	0.07	1.53	0.51
34	<i>Dillenia aurea</i>	33.33	2	0.07	1.09	0.12	0.27	1.48	0.49
35	<i>Castanopsis diversifolia</i>	33.33	4	0.03	1.09	0.25	0.12	1.45	0.48
36	<i>Dalbergia cultrata</i>	33.33	4	0.01	1.09	0.25	0.05	1.38	0.46
37	<i>Ternstroemia gymnanthera</i>	33.33	2	0.01	1.09	0.12	0.04	1.25	0.42
38	<i>Ziziphus oenoplia</i>	33.33	2	0.01	1.09	0.12	0.04	1.25	0.42
39	<i>Flacourtia indica</i>	33.33	2	0.01	1.09	0.12	0.04	1.25	0.42
40	<i>Lithocarpus lindleyanus</i>	33.33	2	0.01	1.09	0.12	0.03	1.24	0.41
41	<i>Cratoxylum sumatranum</i>	33.33	2	0.01	1.09	0.12	0.03	1.24	0.41
42	<i>Dolichandrone serrulata</i>	33.33	2	0.004	1.09	0.12	0.02	1.23	0.41
43	<i>Dalbergia foliacea</i>	33.33	2	0.004	1.09	0.12	0.02	1.23	0.41
44	<i>Semecarpus anacardium</i>	33.33	2	0.004	1.09	0.12	0.02	1.23	0.41
45	<i>Cratoxylum formosum</i>	33.33	2	0.003	1.09	0.12	0.01	1.22	0.41
46	<i>Symplocos henschelii</i>	33.33	2	0.003	1.09	0.12	0.01	1.22	0.41
47	<i>Catunaregam tomentosa</i>	33.33	2	0.002	1.09	0.12	0.01	1.22	0.41
48	<i>Engelhardtia spicata</i>	33.33	2	0.001	1.09	0.12	0.002	1.21	0.40
49	<i>Turpinia pomifera</i>	33.33	2	0.0004	1.09	0.12	0.002	1.21	0.40
50	<i>Syzygium albiflorum</i>	33.33	2	0.0004	1.09	0.12	0.002	1.21	0.40
Total		2,966.67	1,694	24.20	100.00	100.00	100.00	300.00	100.00
24 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	338	14.75	4.48	42.86	53.541	100.88	33.63
2	<i>Castanopsis diversifolia</i>	100.00	44	5.09	4.48	5.56	18.467	28.50	9.50
3	<i>Schima wallichii</i>	100.00	54	1.70	4.48	6.88	6.178	17.53	5.84
4	<i>Helicia nilagirica</i>	100.00	54	0.78	4.48	6.88	2.828	14.18	4.73
5	<i>Eurya nitida</i>	66.67	77	0.08	2.99	9.79	0.273	13.05	4.35
6	<i>Elaeocarpus sphaericus</i>	100.00	25	1.36	4.48	3.17	4.925	12.58	4.19
7	<i>Styrax benzoides</i>	100.00	15	0.21	4.48	1.85	0.751	7.08	2.36
8	<i>Glochidion sphaerogynum</i>	66.67	13	0.35	2.99	1.59	1.264	5.84	1.95
9	<i>Erythrina subumbrans</i>	66.67	8	0.42	2.99	1.06	1.539	5.58	1.86
10	<i>Archidendron clypearia</i>	66.67	19	0.00	2.99	2.38	0.017	5.38	1.79
11	<i>Phoebe paniculata</i>	66.67	17	0.01	2.99	2.12	0.047	5.15	1.72
12	<i>Ternstroemia gymnanthera</i>	66.67	8	0.26	2.99	1.06	0.959	5.00	1.67
13	<i>Sarcosperma arboreum</i>	33.33	6	0.73	1.49	0.79	2.661	4.95	1.65
14	<i>Syzygium cumini</i>	33.33	2	0.73	1.49	0.26	2.653	4.41	1.47
15	<i>Engelhardtia serrata</i>	66.67	4	0.23	2.99	0.53	0.818	4.33	1.44
16	<i>Wendlandia tinctoria</i>	66.67	8	0.01	2.99	1.06	0.049	4.09	1.36
17	<i>Phyllanthus emblica</i>	66.67	6	0.07	2.99	0.79	0.243	4.02	1.34
18	<i>Melastoma sanguineum</i>	33.33	10	0.00	1.49	1.32	0.003	2.82	0.94
19	<i>Betula alnoides</i>	33.33	2	0.18	1.49	0.26	0.638	2.40	0.80
20	<i>Dalbergia foliacea</i>	33.33	6	0.02	1.49	0.79	0.063	2.35	0.78
21	<i>Engelhardtia spicata</i>	33.33	2	0.16	1.49	0.26	0.578	2.33	0.78
22	<i>Pavetta tomentosa</i>	33.33	6	0.00	1.49	0.79	0.010	2.30	0.77
23	<i>Morinda tomentosa</i>	33.33	6	0.00	1.49	0.79	0.002	2.29	0.76
24	<i>Magnolia henryi</i>	33.33	2	0.14	1.49	0.26	0.515	2.27	0.76
25	<i>Gluta obovata</i>	33.33	4	0.03	1.49	0.53	0.092	2.11	0.70
26	<i>Dalbergia assamica</i>	33.33	2	0.09	1.49	0.26	0.320	2.08	0.69
27	<i>Syzygium albiflorum</i>	33.33	4	0.01	1.49	0.53	0.045	2.07	0.69
28	<i>Rhus javanica</i>	33.33	4	0.00	1.49	0.53	0.002	2.02	0.67
29	<i>Albizia odoratissima</i>	33.33	4	0.00	1.49	0.53	0.002	2.02	0.67
30	<i>Callicarpa arborea</i>	33.33	2	0.03	1.49	0.26	0.096	1.85	0.62
31	<i>Dolichandrone serrulata</i>	33.33	2	0.03	1.49	0.26	0.092	1.85	0.62
32	<i>Gmelina arborea</i>	33.33	2	0.03	1.49	0.26	0.092	1.85	0.62
33	<i>Stereospermum neuranthum</i>	33.33	2	0.01	1.49	0.26	0.051	1.81	0.60
34	<i>Helicia terminalis</i>	33.33	2	0.01	1.49	0.26	0.051	1.81	0.60
35	<i>Holarrhena pubescens</i>	33.33	2	0.01	1.49	0.26	0.047	1.80	0.60

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
24 year-old pine plantation									
36	<i>Anneslea fragrans</i>	33.33	2	0.01	1.49	0.26	0.036	1.79	0.60
37	<i>Diospyros glandulosa</i>	33.33	2	0.01	1.49	0.26	0.024	1.78	0.59
38	<i>Turpinia pomifera</i>	33.33	2	0.01	1.49	0.26	0.019	1.78	0.59
39	<i>Symplocos sp.</i>	33.33	2	0.001	1.49	0.26	0.003	1.76	0.59
40	<i>Pittosporum nepaulense</i>	33.33	2	0.0004	1.49	0.26	0.002	1.76	0.59
41	<i>Olea salicifolia</i>	33.33	2	0.0004	1.49	0.26	0.002	1.76	0.59
42	<i>Canarium subulatum</i>	33.33	2	0.0003	1.49	0.26	0.001	1.76	0.59
43	<i>Vernonia volkameriifolia</i>	33.33	2	0.0003	1.49	0.26	0.001	1.76	0.59
44	<i>Acacia megaladena</i>	33.33	2	0.0002	1.49	0.26	0.001	1.76	0.59
45	<i>Lindera metcalfiana</i>	33.33	2	0.0001	1.49	0.26	0.001	1.76	0.59
46	<i>Litsea cubeba</i>	33.33	2	0.0001	1.49	0.26	0.0002	1.76	0.59
Total		2,233.33	788	27.54	100.00	100.00	100.00	300.0	100.0
25 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	429	19.19	4.69	44.59	68.22	117.5	39.17
2	<i>Wendlandia tinctoria</i>	100.00	123	0.52	4.69	12.77	1.87	19.32	6.44
3	<i>Schima wallichii</i>	100.00	71	1.89	4.69	7.36	6.70	18.75	6.25
4	<i>Castanopsis diversifolia</i>	66.67	40	1.27	3.13	4.11	4.50	11.74	3.91
5	<i>Anneslea fragrans</i>	100.00	35	0.75	4.69	3.68	2.68	11.05	3.68
6	<i>Helicia nilagirica</i>	100.00	33	0.37	4.69	3.46	1.30	9.45	3.15
7	<i>Gluta obovata</i>	100.00	31	0.21	4.69	3.25	0.75	8.68	2.89
8	<i>Syzygium albiflorum</i>	66.67	19	0.95	3.13	1.95	3.36	8.43	2.81
9	<i>Glochidion sphaerogynum</i>	100.00	15	0.22	4.69	1.52	0.77	6.97	2.32
10	<i>Engelhardtia spicata</i>	100.00	13	0.10	4.69	1.30	0.35	6.33	2.11
11	<i>Ternstroemia gymnanthera</i>	66.67	15	0.26	3.13	1.52	0.92	5.56	1.85
12	<i>Castanopsis purpurea</i>	33.33	4	0.73	1.56	0.43	2.58	4.58	1.53
13	<i>Lithocarpus sootepensis</i>	66.67	10	0.10	3.13	1.08	0.35	4.56	1.52
14	<i>Styrax benzoides</i>	33.33	19	0.25	1.56	1.95	0.87	4.38	1.46
15	<i>Tristania rufescens</i>	66.67	8	0.08	3.13	0.87	0.29	4.28	1.43
16	<i>Phyllanthus emblica</i>	66.67	8	0.04	3.13	0.87	0.14	4.13	1.38
17	<i>Engelhardtia serrata</i>	66.67	6	0.10	3.13	0.65	0.36	4.13	1.38
18	<i>Diospyros glandulosa</i>	66.67	6	0.09	3.13	0.65	0.33	4.10	1.37
19	<i>Gluta usitata</i>	66.67	6	0.02	3.13	0.65	0.08	3.85	1.28
20	<i>Castanopsis acuminatissima</i>	33.33	6	0.45	1.56	0.65	1.58	3.80	1.27
21	<i>Ficus ribes</i>	33.33	10	0.14	1.56	1.08	0.50	3.15	1.05
22	<i>Dalbergia foliacea</i>	33.33	10	0.02	1.56	1.08	0.08	2.72	0.91
23	<i>Dalbergia assamica</i>	33.33	4	0.06	1.56	0.43	0.21	2.20	0.73
24	<i>Betula alnoides</i>	33.33	2	0.12	1.56	0.22	0.42	2.19	0.73
25	<i>Phoebe paniculata</i>	33.33	4	0.02	1.56	0.43	0.09	2.08	0.69
26	<i>Callicarpa arborea</i>	33.33	2	0.07	1.56	0.22	0.23	2.01	0.67
27	<i>Elaeocarpus sphaericus</i>	33.33	4	0.00	1.56	0.43	0.02	2.01	0.67
28	<i>Acacia megaladena</i>	33.33	4	0.00	1.56	0.43	0.00	2.00	0.67
29	<i>Dillenia aurea</i>	33.33	2	0.04	1.56	0.22	0.13	1.91	0.64
30	<i>Magnolia henryi</i>	33.33	2	0.03	1.56	0.22	0.09	1.87	0.62
31	<i>Eurya nitida</i>	33.33	2	0.02	1.56	0.22	0.07	1.85	0.62
32	<i>Phoebe cathia</i>	33.33	2	0.02	1.56	0.22	0.07	1.85	0.62
33	<i>Symplocos sp.</i>	33.33	2	0.01	1.56	0.22	0.04	1.81	0.60
34	<i>Dolichandrone serrulata</i>	33.33	2	0.01	1.56	0.22	0.03	1.80	0.60
35	<i>Aporosa villosa</i>	33.33	2	0.005	1.56	0.22	0.02	1.80	0.60
36	<i>Olea salicifolia</i>	33.33	2	0.001	1.56	0.22	0.005	1.78	0.59
37	<i>Archidendron clypearia</i>	33.33	2	0.0003	1.56	0.22	0.001	1.78	0.59
38	<i>Albizia odoratissima</i>	33.33	2	0.0003	1.56	0.22	0.001	1.78	0.59
39	<i>Pavetta tomentosa</i>	33.33	2	0.0002	1.56	0.22	0.001	1.78	0.59
Total		2,133	963	28.13	100.00	100.00	100.00	300.0	100.0

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
26 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	392	29.93	6.52	55.13	69.47	131.13	43.71
2	<i>Schima wallichii</i>	100.00	108	4.16	6.52	15.25	9.66	31.44	10.48
3	<i>Castanopsis diversifolia</i>	100.00	33	2.04	6.52	4.69	4.73	15.94	5.31
4	<i>Ternstroemia gymnanthera</i>	66.67	25	0.62	4.35	3.52	1.44	9.31	3.10
5	<i>Glochidion sphaerogynum</i>	100.00	10	0.05	6.52	1.47	0.12	8.11	2.70
6	<i>Helicia terminalis</i>	66.67	6	1.01	4.35	0.88	2.36	7.58	2.53
7	<i>Helicia nilagirica</i>	66.67	15	0.16	4.35	2.05	0.38	6.78	2.26
8	<i>Quercus semiserrata</i>	33.33	2	1.49	2.17	0.29	3.46	5.93	1.98
9	<i>Phoebe paniculata</i>	66.67	6	0.27	4.35	0.88	0.62	5.85	1.95
10	<i>Elaeocarpus sphaericus</i>	66.67	6	0.15	4.35	0.88	0.35	5.58	1.86
11	<i>Dalbergia assamica</i>	33.33	19	0.13	2.17	2.64	0.30	5.11	1.70
12	<i>Wendlandia tinctoria</i>	66.67	4	0.05	4.35	0.59	0.12	5.06	1.69
13	<i>Eurya nitida</i>	66.67	4	0.01	4.35	0.59	0.02	4.95	1.65
14	<i>Syzygium albiflorum</i>	33.33	8	0.58	2.17	1.17	1.35	4.70	1.57
15	<i>Lithocarpus elegans</i>	33.33	15	0.11	2.17	2.05	0.26	4.49	1.50
16	<i>Quercus vestita</i>	33.33	13	0.05	2.17	1.76	0.13	4.06	1.35
17	<i>Engelhardtia spicata</i>	33.33	8	0.19	2.17	1.17	0.43	3.78	1.26
18	<i>Stereospermum neuranthum</i>	33.33	2	0.55	2.17	0.29	1.27	3.74	1.25
19	<i>Castanopsis purpurea</i>	33.33	2	0.45	2.17	0.29	1.03	3.50	1.17
20	<i>Syzygium cumini</i>	33.33	2	0.40	2.17	0.29	0.92	3.39	1.13
21	<i>Dillenia aurea</i>	33.33	2	0.32	2.17	0.29	0.73	3.20	1.07
22	<i>Castanopsis acuminatissima</i>	33.33	4	0.09	2.17	0.59	0.21	2.97	0.99
23	<i>Vaccinium sprengelii</i>	33.33	4	0.03	2.17	0.59	0.07	2.83	0.94
24	<i>Magnolia elegans</i>	33.33	4	0.01	2.17	0.59	0.02	2.78	0.93
25	<i>Toona ciliata</i>	33.33	2	0.11	2.17	0.29	0.25	2.72	0.91
26	<i>Myrica esculenta</i>	33.33	2	0.06	2.17	0.29	0.13	2.60	0.87
27	<i>Styrax benzoides</i>	33.33	2	0.03	2.17	0.29	0.08	2.54	0.85
28	<i>Albizia chinensis</i>	33.33	2	0.03	2.17	0.29	0.06	2.53	0.84
29	<i>Terminalia chebula</i>	33.33	2	0.005	2.17	0.29	0.01	2.48	0.83
30	<i>Aporosa villosa</i>	33.33	2	0.001	2.17	0.29	0.003	2.47	0.82
31	<i>Acacia megaladena</i>	33.33	2	0.0001	2.17	0.29	0.0003	2.47	0.82
Total		1,533.33	710	43.08	100.00	100.0	100.00	300.00	100.0
27 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	290	17.476	2.46	12.87	57.396	72.73	24.24
2	<i>Schima wallichii</i>	100.00	223	6.568	2.46	9.91	21.573	33.94	11.31
3	<i>Mallotus paniculatus</i>	33.33	325	0.050	0.82	14.44	0.165	15.43	5.14
4	<i>Phoebe paniculata</i>	100.00	165	0.674	2.46	7.31	2.214	11.99	4.00
5	<i>Dalbergia velutina</i>	66.67	121	0.361	1.64	5.37	1.184	8.19	2.73
6	<i>Neolitsea zeylanica</i>	66.67	144	0.021	1.64	6.39	0.070	8.10	2.70
7	<i>Wendlandia tinctoria</i>	100.00	83	0.472	2.46	3.70	1.551	7.71	2.57
8	<i>Glochidion sphaerogynum</i>	100.00	60	0.750	2.46	2.69	2.463	7.61	2.54
9	<i>Castanopsis diversifolia</i>	100.00	35	0.732	2.46	1.57	2.404	6.44	2.15
10	<i>Styrax benzoides</i>	100.00	65	0.164	2.46	2.87	0.539	5.87	1.96
11	<i>Eurya nitida</i>	100.00	67	0.090	2.46	2.96	0.296	5.72	1.91
12	<i>Catunaregam tomentosa</i>	66.67	90	0.005	1.64	3.98	0.018	5.64	1.88
13	<i>Elaeocarpus sphaericus</i>	100.00	25	0.590	2.46	1.11	1.936	5.51	1.84
14	<i>Syzygium albiflorum</i>	100.00	35	0.158	2.46	1.57	0.520	4.55	1.52
15	<i>Lithocarpus elegans</i>	66.67	44	0.246	1.64	1.94	0.809	4.39	1.46
16	<i>Euodia roxburghiana</i>	100.00	29	0.001	2.46	1.30	0.004	3.76	1.25
17	<i>Archidendron clypearia</i>	100.00	27	0.004	2.46	1.20	0.014	3.68	1.23
18	<i>Mussaenda sanderiana</i>	100.00	27	0.002	2.46	1.20	0.005	3.67	1.22
19	<i>Phoebe lanceolata</i>	66.67	44	0.007	1.64	1.94	0.024	3.61	1.20
20	<i>Castanopsis purpurea</i>	66.67	8	0.390	1.64	0.37	1.280	3.29	1.10
21	<i>Milletia pachycarpa</i>	100.00	17	0.001	2.46	0.74	0.003	3.20	1.07
22	<i>Symplocos racemosa</i>	100.00	8	0.076	2.46	0.37	0.249	3.08	1.03
23	<i>Rhus javanica</i>	100.00	8	0.001	2.46	0.37	0.003	2.83	0.94
24	<i>Symplocos sp.</i>	66.67	21	0.059	1.64	0.93	0.192	2.76	0.92
25	<i>Buchanania lanzan</i>	33.33	10	0.424	0.82	0.46	1.394	2.68	0.89
26	<i>Memecylon celastrinum</i>	66.67	19	0.002	1.64	0.83	0.007	2.48	0.83

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
27 year-old pine plantation									
27	<i>Albizia odoratissima</i>	66.67	10	0.101	1.64	0.46	0.332	2.43	0.81
28	<i>Phyllanthus emblica</i>	66.67	17	0.005	1.64	0.74	0.016	2.40	0.80
29	<i>Helicia nilagirica</i>	66.67	8	0.115	1.64	0.37	0.378	2.39	0.80
30	<i>Betula alnoides</i>	33.33	4	0.407	0.82	0.19	1.336	2.34	0.78
31	<i>Myrica esculenta</i>	66.67	13	0.014	1.64	0.56	0.046	2.24	0.75
32	<i>Markhamia pierreii</i>	66.67	10	0.039	1.64	0.46	0.127	2.23	0.74
33	<i>Diospyros glandulosa</i>	66.67	13	0.001	1.64	0.56	0.004	2.20	0.73
34	<i>Memecylon edule</i>	66.67	6	0.032	1.64	0.28	0.106	2.02	0.67
35	<i>Melastoma sanguineum</i>	66.67	8	0.001	1.64	0.37	0.004	2.01	0.67
36	<i>Lindera metcalfiana</i>	66.67	6	0.001	1.64	0.28	0.002	1.92	0.64
37	<i>Engelhardtia spicata</i>	66.67	4	0.027	1.64	0.19	0.089	1.91	0.64
38	<i>Helicia terminalis</i>	66.67	4	0.019	1.64	0.19	0.062	1.89	0.63
39	<i>Ameslea fragrans</i>	66.67	4	0.014	1.64	0.19	0.047	1.87	0.62
40	<i>Blumea balsamifera</i>	33.33	17	0.002	0.82	0.74	0.008	1.57	0.52
41	<i>Cinnamomum iners</i>	33.33	17	0.002	0.82	0.74	0.006	1.57	0.52
42	<i>Litsea cubeba</i>	33.33	13	0.001	0.82	0.56	0.004	1.38	0.46
43	<i>Artocarpus sp.</i>	33.33	10	0.003	0.82	0.46	0.011	1.29	0.43
44	<i>Vernonia volkamerifolia</i>	33.33	8	0.001	0.82	0.37	0.004	1.19	0.40
45	<i>Albizia chinensis</i>	33.33	8	0.001	0.82	0.37	0.002	1.19	0.40
46	<i>Acacia pennata</i>	33.33	8	0.000	0.82	0.37	0.001	1.19	0.40
47	<i>Syzygium cumini</i>	33.33	6	0.027	0.82	0.28	0.088	1.19	0.40
48	<i>Lithocarpus garrettianus</i>	33.33	6	0.021	0.82	0.28	0.069	1.17	0.39
49	<i>Lithocarpus fenestratus</i>	33.33	4	0.049	0.82	0.19	0.161	1.17	0.39
50	<i>Quercus brandisiana</i>	33.33	2	0.072	0.82	0.09	0.237	1.15	0.38
51	<i>Castanopsis</i>	33.33	2	0.068	0.82	0.09	0.223	1.14	0.38
52	<i>Cleidion spiciflorum</i>	33.33	2	0.057	0.82	0.09	0.188	1.10	0.37
53	<i>Acacia megaladena</i>	33.33	6	0.000	0.82	0.28	0.001	1.10	0.37
54	<i>Turpinia cochinchinensis</i>	33.33	4	0.001	0.82	0.19	0.005	1.01	0.34
55	<i>Glochidion arborescens</i>	33.33	4	0.001	0.82	0.19	0.002	1.01	0.34
56	<i>Syzygium sp.</i>	33.33	4	0.000	0.82	0.19	0.001	1.01	0.34
57	<i>Colona flagrocarpa</i>	33.33	2	0.025	0.82	0.09	0.083	1.00	0.33
58	<i>Semecarpus albescens</i>	33.33	2	0.010	0.82	0.09	0.033	0.94	0.31
59	<i>Ternstroemia</i>	33.33	2	0.001	0.82	0.09	0.003	0.92	0.31
60	<i>Canthium sp.</i>	33.33	2	0.001	0.82	0.09	0.002	0.91	0.30
61	<i>Kydia calycina</i>	33.33	2	0.001	0.82	0.09	0.002	0.91	0.30
62	<i>Magnolia henryi</i>	33.33	2	0.0004	0.82	0.09	0.001	0.91	0.30
63	<i>Artocarpus lacucha</i>	33.33	2	0.0004	0.82	0.09	0.001	0.91	0.30
64	<i>Viburnum sambucinum</i>	33.33	2	0.0004	0.82	0.09	0.001	0.91	0.30
65	<i>Engelhardtia serrata</i>	33.33	2	0.0004	0.82	0.09	0.001	0.91	0.30
66	<i>Craibiodendron stellatum</i>	33.33	2	0.0003	0.82	0.09	0.001	0.91	0.30
67	<i>Antidesma acidum</i>	33.33	2	0.0003	0.82	0.09	0.001	0.91	0.30
68	<i>Antiaris toxicaria</i>	33.33	2	0.0001	0.82	0.09	0.0005	0.91	0.30
69	<i>Gluta obovata</i>	33.33	2	0.0001	0.82	0.09	0.0005	0.91	0.30
70	<i>Ficus callosa</i>	33.33	2	0.0001	0.82	0.09	0.0003	0.91	0.30
Total		4,066.67	2,250	30.45	100.00	100.00	100.00	300.00	100.00
28 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	223	22.72	4.69	38.21	81.25	124.15	41.38
2	<i>Schima wallichii</i>	100.00	56	3.016	4.69	9.64	10.79	25.12	8.37
3	<i>Litsea cubeba</i>	100.00	56	0.020	4.69	9.64	0.070	14.40	4.80
4	<i>Glochidion sphaerogynum</i>	100.00	27	0.405	4.69	4.64	1.448	10.78	3.59
5	<i>Engelhardtia spicata</i>	100.00	21	0.483	4.69	3.57	1.726	9.99	3.33
6	<i>Gmelina arborea</i>	100.00	17	0.047	4.69	2.86	0.168	7.71	2.57
7	<i>Ficus ribes</i>	100.00	15	0.018	4.69	2.50	0.065	7.25	2.42
8	<i>Phoebe paniculata</i>	100.00	15	0.005	4.69	2.50	0.017	7.20	2.40
9	<i>Castanopsis diversifolia</i>	66.67	19	0.222	3.13	3.21	0.793	7.13	2.38
10	<i>Wendlandia tinctoria</i>	100.00	13	0.003	4.69	2.14	0.010	6.84	2.28
11	<i>Erythrina subumbrans</i>	100.00	10	0.057	4.69	1.79	0.205	6.68	2.23
12	<i>Stereospermum</i>	100.00	8	0.104	4.69	1.43	0.374	6.49	2.16
13	<i>Diospyros glandulosa</i>	66.67	19	0.009	3.13	3.21	0.033	6.37	2.12

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
28 year-old pine plantation									
14	<i>Phyllanthus emblica</i>	100.00	8	0.019	4.69	1.43	0.068	6.18	2.06
15	<i>Dalbergia assamica</i>	66.67	6	0.029	3.13	1.07	0.102	4.30	1.43
16	<i>Syzygium albiflorum</i>	66.67	6	0.021	3.13	1.07	0.074	4.27	1.42
17	<i>Dalbergia foliacea</i>	66.67	4	0.043	3.13	0.71	0.152	3.99	1.33
18	<i>Markhamia stipulata</i>	33.33	4	0.327	1.56	0.71	1.169	3.45	1.15
19	<i>Vernonia volkameriifolia</i>	33.33	8	0.003	1.56	1.43	0.010	3.00	1.00
20	<i>Colona flagrocarpa</i>	33.33	4	0.107	1.56	0.71	0.381	2.66	0.89
21	<i>Archidendron clypearia</i>	33.33	6	0.004	1.56	1.07	0.016	2.65	0.88
22	<i>Albizia odoratissima</i>	33.33	4	0.022	1.56	0.71	0.078	2.35	0.78
23	<i>Entada rheedii</i>	33.33	2	0.120	1.56	0.36	0.428	2.35	0.78
24	<i>Castanopsis purpurea</i>	33.33	2	0.111	1.56	0.36	0.399	2.32	0.77
25	<i>Rhus javanica</i>	33.33	4	0.002	1.56	0.71	0.006	2.28	0.76
26	<i>Phoebe lanceolata</i>	33.33	4	0.001	1.56	0.71	0.005	2.28	0.76
27	<i>Melastoma sanguineum</i>	33.33	4	0.001	1.56	0.71	0.002	2.28	0.76
28	<i>Vaccinium sprengelii</i>	33.33	2	0.034	1.56	0.36	0.120	2.04	0.68
29	<i>Musa acuminata</i>	33.33	2	0.009	1.56	0.36	0.031	1.95	0.65
30	<i>Horsfieldia tomentosa</i>	33.33	2	0.002	1.56	0.36	0.007	1.93	0.64
31	<i>Eriolaena candollei</i>	33.33	2	0.001	1.56	0.36	0.002	1.92	0.64
32	<i>Acacia megaladena</i>	33.33	2	0.0004	1.56	0.36	0.001	1.92	0.64
33	<i>Litsea monopetala</i>	33.33	2	0.0004	1.56	0.36	0.001	1.92	0.64
34	<i>Syzygium cumini</i>	33.33	2	0.0004	1.56	0.36	0.001	1.92	0.64
35	<i>Aporosa villosa</i>	33.33	2	0.0004	1.56	0.36	0.001	1.92	0.64
Total		2,133.33	583	27.96	100.00	100.00	100.00	300.00	100.00
29 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	233	14.67	6.12	39.02	65.07	110.22	36.74
2	<i>Castanopsis purpurea</i>	33.33	69	2.01	2.04	11.50	8.93	22.47	7.49
3	<i>Schima wallichii</i>	100.00	58	1.45	6.12	9.76	6.41	22.29	7.43
4	<i>Helicia nilagirica</i>	100.00	48	1.25	6.12	8.01	5.56	19.70	6.57
5	<i>Wendlandia tinctoria</i>	66.67	46	0.19	4.08	7.67	0.84	12.59	4.20
6	<i>Castanopsis diversifolia</i>	100.00	15	0.27	6.12	2.44	1.21	9.77	3.26
7	<i>Helicia terminalis</i>	100.00	13	0.26	6.12	2.09	1.14	9.35	3.12
8	<i>Anneslea fragrans</i>	66.67	4	0.84	4.08	0.70	3.71	8.48	2.83
9	<i>Cycas pectinata</i>	100.00	6	0.23	6.12	1.05	1.03	8.20	2.73
10	<i>Blumea balsamifera</i>	66.67	15	0.01	4.08	2.44	0.05	6.57	2.19
11	<i>Engelhardtia spicata</i>	66.67	6	0.15	4.08	1.05	0.69	5.81	1.94
12	<i>Phyllanthus emblica</i>	66.67	8	0.05	4.08	1.39	0.24	5.71	1.90
13	<i>Quercus vestita</i>	33.33	8	0.35	2.04	1.39	1.53	4.97	1.66
14	<i>Myrica esculenta</i>	33.33	10	0.25	2.04	1.74	1.12	4.90	1.63
15	<i>Melastoma sanguineum</i>	33.33	10	0.00	2.04	1.74	0.01	3.80	1.27
16	<i>Toona ciliata</i>	33.33	4	0.17	2.04	0.70	0.75	3.49	1.16
17	<i>Eriolaena candollei</i>	33.33	4	0.09	2.04	0.70	0.40	3.14	1.05
18	<i>Pyrenaria diospyricarpa</i>	33.33	4	0.05	2.04	0.70	0.23	2.97	0.99
19	<i>Acacia megaladena</i>	33.33	4	0.02	2.04	0.70	0.10	2.84	0.95
20	<i>Tadehagi triquetrum</i>	33.33	4	0.02	2.04	0.70	0.09	2.83	0.94
21	<i>Catunaregam tomentosa</i>	33.33	4	0.01	2.04	0.70	0.03	2.77	0.92
22	<i>Erythrina subumbrans</i>	33.33	2	0.08	2.04	0.35	0.37	2.75	0.92
23	<i>Ternstroemia gymnanthera</i>	33.33	2	0.03	2.04	0.35	0.14	2.53	0.84
24	<i>Lithocarpus elegans</i>	33.33	2	0.02	2.04	0.35	0.08	2.47	0.82
25	<i>Morinda tomentosa</i>	33.33	2	0.02	2.04	0.35	0.07	2.46	0.82
26	<i>Pterospermum acerifolium</i>	33.33	2	0.01	2.04	0.35	0.06	2.45	0.82
27	<i>Antidesma acidum</i>	33.33	2	0.01	2.04	0.35	0.04	2.43	0.81
28	<i>Glochidion sphaerogynum</i>	33.33	2	0.01	2.04	0.35	0.04	2.43	0.81
29	<i>Glochidion hirsutum</i>	33.33	2	0.01	2.04	0.35	0.03	2.42	0.81
30	<i>Dalbergia foliacea</i>	33.33	2	0.01	2.04	0.35	0.02	2.41	0.80
31	<i>Litsea cubeba</i>	33.33	2	0.0004	2.04	0.35	0.002	2.39	0.80
32	<i>Syzygium cumini</i>	33.33	2	0.0002	2.04	0.35	0.001	2.39	0.80
Total		1,633.33	598	22.54	100.00	100.00	100.00	300.00	100.00

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
30 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	240	21.96	5.77	38.33	66.56	110.67	36.89
2	<i>Schima wallichii</i>	100.00	121	3.16	5.77	19.33	9.57	34.67	11.56
3	<i>Castanopsis diversifolia</i>	100.00	40	3.21	5.77	6.33	9.74	21.84	7.28
4	<i>Dalbergia assamica</i>	100.00	44	0.81	5.77	7.00	2.45	15.22	5.07
5	<i>Engelhardtia spicata</i>	66.67	29	1.01	3.85	4.67	3.05	11.57	3.86
6	<i>Lithocarpus elegans</i>	66.67	33	0.63	3.85	5.33	1.92	11.09	3.70
7	<i>Castanopsis purpurea</i>	33.33	15	1.06	1.92	2.33	3.22	7.47	2.49
8	<i>Wendlandia tinctoria</i>	66.67	10	0.06	3.85	1.67	0.17	5.69	1.90
9	<i>Markhamia stipulata</i>	66.67	6	0.05	3.85	1.00	0.14	4.99	1.66
10	<i>Myrica esculenta</i>	66.67	4	0.12	3.85	0.67	0.36	4.88	1.63
11	<i>Albizia odoratissima</i>	66.67	4	0.07	3.85	0.67	0.21	4.72	1.57
12	<i>Gmelina arborea</i>	66.67	4	0.02	3.85	0.67	0.06	4.57	1.52
13	<i>Syzygium albiflorum</i>	66.67	4	0.00	3.85	0.67	0.01	4.53	1.51
14	<i>Gluta obovata</i>	33.33	6	0.06	1.92	1.00	0.19	3.11	1.04
15	<i>Gluta usitata</i>	33.33	6	0.03	1.92	1.00	0.11	3.03	1.01
16	<i>Dolichandrone serrulata</i>	33.33	4	0.13	1.92	0.67	0.40	2.99	1.00
17	<i>Phyllanthus emblica</i>	33.33	6	0.01	1.92	1.00	0.03	2.95	0.98
18	<i>Elaeocarpus sphaericus</i>	33.33	4	0.06	1.92	0.67	0.17	2.76	0.92
19	<i>Colona flagrocarpa</i>	33.33	4	0.03	1.92	0.67	0.09	2.68	0.89
20	<i>Magnolia henryi</i>	33.33	4	0.02	1.92	0.67	0.06	2.65	0.88
21	<i>Symplocos racemosa</i>	33.33	4	0.01	1.92	0.67	0.02	2.61	0.87
22	<i>Canarium subulatum</i>	33.33	2	0.12	1.92	0.33	0.35	2.61	0.87
23	<i>Sapindus rarak</i>	33.33	2	0.08	1.92	0.33	0.25	2.50	0.83
24	<i>Symplocos sp.</i>	33.33	2	0.08	1.92	0.33	0.24	2.50	0.83
25	<i>Garuga pinnata</i>	33.33	2	0.06	1.92	0.33	0.19	2.45	0.82
26	<i>Blumea balsamifera</i>	33.33	2	0.06	1.92	0.33	0.18	2.44	0.81
27	<i>Engelhardtia serrata</i>	33.33	2	0.02	1.92	0.33	0.06	2.31	0.77
28	<i>Acacia megaladena</i>	33.33	2	0.02	1.92	0.33	0.05	2.31	0.77
29	<i>Aporosa villosa</i>	33.33	2	0.02	1.92	0.33	0.05	2.30	0.77
30	<i>Castanopsis acuminatissima</i>	33.33	2	0.01	1.92	0.33	0.03	2.29	0.76
31	<i>Vaccinium sprengelii</i>	33.33	2	0.01	1.92	0.33	0.03	2.29	0.76
32	<i>Erythrina subumbrans</i>	33.33	2	0.01	1.92	0.33	0.02	2.28	0.76
33	<i>Morinda tomentosa</i>	33.33	2	0.003	1.92	0.33	0.01	2.27	0.76
34	<i>Phoebe paniculata</i>	33.33	2	0.001	1.92	0.33	0.004	2.26	0.75
35	<i>Pyrenaria diospyricarpa</i>	33.33	2	0.001	1.92	0.33	0.003	2.26	0.75
36	<i>Lithocarpus sootepensis</i>	33.33	2	0.0004	1.92	0.33	0.001	2.26	0.75
Total		1,733.33	625	32.99	100.00	100.00	100.00	300.00	100.00
31 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	125	11.93	4.48	15.96	38.88	59.31	19.77
2	<i>Schima wallichii</i>	100.00	148	4.36	4.48	18.88	14.22	37.58	12.53
3	<i>Castanopsis diversifolia</i>	100.00	102	5.56	4.48	13.03	18.11	35.62	11.87
4	<i>Wendlandia tinctoria</i>	100.00	152	1.67	4.48	19.42	5.43	29.32	9.77
5	<i>Syzygium albiflorum</i>	100.00	23	1.01	4.48	2.93	3.29	10.69	3.56
6	<i>Helicia nilagirica</i>	100.00	29	0.59	4.48	3.72	1.91	10.11	3.37
7	<i>Castanopsis acuminatissima</i>	33.33	17	1.95	1.49	2.13	6.36	9.98	3.33
8	<i>Myrica esculenta</i>	66.67	17	0.59	2.99	2.13	1.91	7.02	2.34
9	<i>Ternstroemia gymnanthera</i>	100.00	8	0.25	4.48	1.06	0.83	6.37	2.12
10	<i>Elaeocarpus sphaericus</i>	66.67	17	0.29	2.99	2.13	0.96	6.07	2.02
11	<i>Engelhardtia spicata</i>	100.00	10	0.06	4.48	1.33	0.21	6.02	2.01
12	<i>Phyllanthus emblica</i>	66.67	15	0.11	2.99	1.86	0.36	5.21	1.74
13	<i>Anneslea fragrans</i>	66.67	10	0.12	2.99	1.33	0.40	4.72	1.57
14	<i>Phoebe paniculata</i>	66.67	10	0.09	2.99	1.33	0.30	4.62	1.54

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
31 year-old pine plantation									
15	<i>Symplocos sp.</i>	66.67	8	0.12	2.99	1.06	0.40	4.45	1.48
16	<i>Syzygium cumini</i>	33.33	8	0.53	1.49	1.06	1.72	4.28	1.43
17	<i>Erythrina subumbrans</i>	66.67	4	0.21	2.99	0.53	0.68	4.20	1.40
18	<i>Memecylon celastrinum</i>	66.67	8	0.02	2.99	1.06	0.08	4.13	1.38
19	<i>Gluta obovata</i>	66.67	6	0.08	2.99	0.80	0.27	4.05	1.35
20	<i>Helicia terminalis</i>	66.67	6	0.04	2.99	0.80	0.13	3.91	1.30
21	<i>Eurya nitida</i>	66.67	4	0.06	2.99	0.53	0.19	3.71	1.24
22	<i>Diospyros glandulosa</i>	66.67	4	0.05	2.99	0.53	0.16	3.68	1.23
23	<i>Rapanea porteriiana</i>	33.33	10	0.11	1.49	1.33	0.36	3.18	1.06
24	<i>Betula alnoides</i>	33.33	2	0.36	1.49	0.27	1.17	2.93	0.98
25	<i>Docynia indica</i>	33.33	6	0.13	1.49	0.80	0.42	2.71	0.90
26	<i>Canarium subulatum</i>	33.33	4	0.19	1.49	0.53	0.61	2.63	0.88
27	<i>Gochnatia decora</i>	33.33	2	0.04	1.49	0.27	0.13	1.89	0.63
28	<i>Lithocarpus thomsonii</i>	33.33	2	0.04	1.49	0.27	0.11	1.87	0.62
29	<i>Styrax benzoides</i>	33.33	2	0.03	1.49	0.27	0.09	1.84	0.61
30	<i>Albizia odoratissima</i>	33.33	2	0.03	1.49	0.27	0.08	1.84	0.61
31	<i>Glochidion sphaerogynum</i>	33.33	2	0.03	1.49	0.27	0.08	1.84	0.61
32	<i>Dalbergia cultrata</i>	33.33	2	0.02	1.49	0.27	0.06	1.82	0.61
33	<i>Turpinia pomifera</i>	33.33	2	0.01	1.49	0.27	0.02	1.78	0.59
34	<i>Acacia megaladena</i>	33.33	2	0.01	1.49	0.27	0.02	1.78	0.59
35	<i>Eriolaena candollei</i>	33.33	2	0.003	1.49	0.27	0.01	1.77	0.59
36	<i>Ficus tinctoria</i>	33.33	2	0.003	1.49	0.27	0.01	1.77	0.59
37	<i>Ficus maclellandii</i>	33.33	2	0.001	1.49	0.27	0.002	1.76	0.59
38	<i>Olea salicifolia</i>	33.33	2	0.0004	1.49	0.27	0.001	1.76	0.59
39	<i>Ardisia attenuata</i>	33.33	2	0.0001	1.49	0.27	0.0005	1.76	0.59
Total		2,233.33	783	30.68	100.00	100.00	100.00	300.00	100.00
32 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	283	23.72	6.12	52.51	66.49	125.12	41.71
2	<i>Schima wallichii</i>	100.00	85	5.22	6.12	15.83	14.63	36.58	12.19
3	<i>Castanopsis acuminatissima</i>	100.00	15	1.50	6.12	2.70	4.20	13.03	4.34
4	<i>Elaeocarpus sphaericus</i>	100.00	13	0.39	6.12	2.32	1.10	9.54	3.18
5	<i>Syzygium cumini</i>	33.33	2	1.80	2.04	0.39	5.06	7.48	2.49
6	<i>Xanthophyllum virens</i>	66.67	8	0.51	4.08	1.54	1.44	7.07	2.36
7	<i>Phoebe paniculata</i>	66.67	8	0.49	4.08	1.54	1.38	7.01	2.34
8	<i>Syzygium albiflorum</i>	66.67	15	0.01	4.08	2.70	0.04	6.82	2.27
9	<i>Litsea cubeba</i>	33.33	25	0.00	2.04	4.63	0.01	6.68	2.23
10	<i>Myrica esculenta</i>	66.67	10	0.10	4.08	1.93	0.28	6.29	2.10
11	<i>Glochidion sphaerogynum</i>	66.67	8	0.08	4.08	1.54	0.22	5.85	1.95
12	<i>Magnolia henryi</i>	66.67	4	0.30	4.08	0.77	0.83	5.68	1.89
13	<i>Engelhardtia spicata</i>	66.67	4	0.20	4.08	0.77	0.55	5.41	1.80
14	<i>Musa acuminata</i>	33.33	6	0.07	2.04	1.16	0.19	3.39	1.13
15	<i>Styrax benzoides</i>	33.33	6	0.06	2.04	1.16	0.18	3.38	1.13
16	<i>Wendlandia tinctoria</i>	33.33	6	0.01	2.04	1.16	0.03	3.23	1.08
17	<i>Castanopsis tribuloides</i>	33.33	2	0.27	2.04	0.39	0.76	3.18	1.06
18	<i>Knema erratica</i>	33.33	2	0.23	2.04	0.39	0.64	3.06	1.02
19	<i>Syzygium sp.</i>	33.33	4	0.03	2.04	0.77	0.09	2.90	0.97
20	<i>Betula alnoides</i>	33.33	2	0.17	2.04	0.39	0.47	2.90	0.97
21	<i>Albizia chinensis</i>	33.33	2	0.16	2.04	0.39	0.45	2.87	0.96
22	<i>Erythrina subumbrans</i>	33.33	2	0.09	2.04	0.39	0.26	2.69	0.90
23	<i>Ameslea fragrans</i>	33.33	2	0.08	2.04	0.39	0.23	2.66	0.89
24	<i>Symplocos sp.</i>	33.33	2	0.07	2.04	0.39	0.21	2.64	0.88
25	<i>Luvunga scandens</i>	33.33	2	0.02	2.04	0.39	0.06	2.49	0.83
26	<i>Gmelina arborea</i>	33.33	2	0.02	2.04	0.39	0.05	2.48	0.83
27	<i>Memecylon celastrinum</i>	33.33	2	0.02	2.04	0.39	0.05	2.48	0.83
28	<i>Eurya nitida</i>	33.33	2	0.02	2.04	0.39	0.04	2.47	0.82
29	<i>Phyllanthus emblica</i>	33.33	2	0.01	2.04	0.39	0.02	2.45	0.82
30	<i>Milletia pachycarpa</i>	33.33	2	0.005	2.04	0.39	0.01	2.44	0.81

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
32 year-old pine plantation									
31	<i>Syzygium sp.</i>	33.33	2	0.005	2.04	0.39	0.01	2.44	0.81
32	<i>Olea salicifolia</i>	33.33	2	0.003	2.04	0.39	0.01	2.44	0.81
33	<i>Albizia odoratissima</i>	33.33	2	0.001	2.04	0.39	0.002	2.43	0.81
34	<i>Trichilla connaroides</i>	33.33	2	0.0004	2.04	0.39	0.001	2.43	0.81
Total		1633.33	540	35.68	100.00	100.00	100.00	300.00	100.00
33 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	329	31.74	3.90	29.42	90.89	124.21	41.40
2	<i>Musa acuminata</i>	100.00	365	1.924	3.90	32.59	5.510	41.99	14.00
3	<i>Litsea cubeba</i>	100.00	50	0.022	3.90	4.47	0.064	8.43	2.81
4	<i>Mallotus barbatus</i>	66.67	31	0.086	2.60	2.79	0.246	5.64	1.88
5	<i>Ficus ribes</i>	100.00	19	0.010	3.90	1.68	0.030	5.60	1.87
6	<i>Mussaenda sanderiana</i>	100.00	17	0.005	3.90	1.49	0.015	5.40	1.80
7	<i>Melastoma sanguineum</i>	66.67	27	0.015	2.60	2.42	0.042	5.06	1.69
8	<i>Wendlandia tinctoria</i>	66.67	15	0.324	2.60	1.30	0.929	4.83	1.61
9	<i>Archidendron clypearia</i>	100.00	8	0.006	3.90	0.74	0.016	4.66	1.55
10	<i>Artocarpus lacucha</i>	66.67	19	0.011	2.60	1.68	0.031	4.30	1.43
11	<i>Cinnamomum iners</i>	66.67	8	0.287	2.60	0.74	0.822	4.16	1.39
12	<i>Glochidion acuminatum</i>	66.67	15	0.026	2.60	1.30	0.073	3.97	1.32
13	<i>Sapindus rarak</i>	66.67	13	0.008	2.60	1.12	0.023	3.74	1.25
14	<i>Magnolia henryi</i>	66.67	6	0.135	2.60	0.56	0.386	3.54	1.18
15	<i>Tadehagi triquetrum</i>	33.33	21	0.011	1.30	1.86	0.031	3.19	1.06
16	<i>Horsfieldia tomentosa</i>	66.67	6	0.005	2.60	0.56	0.015	3.17	1.06
17	<i>Phoebe paniculata</i>	66.67	6	0.002	2.60	0.56	0.005	3.16	1.05
18	<i>Rauvolfia cambodiana</i>	66.67	6	0.001	2.60	0.56	0.003	3.16	1.05
19	<i>Trevesia palmata</i>	66.67	4	0.003	2.60	0.37	0.008	2.98	0.99
20	<i>Saurauia napaulensis</i>	33.33	15	0.012	1.30	1.30	0.034	2.64	0.88
21	<i>Lindera metcalfiana</i>	33.33	13	0.005	1.30	1.12	0.013	2.43	0.81
22	<i>Laportea bulbifera</i>	33.33	10	0.010	1.30	0.93	0.029	2.26	0.75
23	<i>Nyssa javanica</i>	33.33	10	0.002	1.30	0.93	0.007	2.24	0.75
24	<i>Albizia chinensis</i>	33.33	2	0.169	1.30	0.19	0.484	1.97	0.66
25	<i>Myrica esculenta</i>	33.33	6	0.003	1.30	0.56	0.010	1.87	0.62
26	<i>Neolitsea zeylanica</i>	33.33	6	0.003	1.30	0.56	0.010	1.87	0.62
27	<i>Schima wallichii</i>	33.33	6	0.002	1.30	0.56	0.005	1.86	0.62
28	<i>Bridelia retusa</i>	33.33	6	0.002	1.30	0.56	0.005	1.86	0.62
29	<i>Ampelocissus martinii</i>	33.33	6	0.001	1.30	0.56	0.002	1.86	0.62
30	<i>Desmodium megaphyllum</i>	33.33	6	0.001	1.30	0.56	0.002	1.86	0.62
31	<i>Ficus sp.</i>	33.33	4	0.012	1.30	0.37	0.036	1.71	0.57
32	<i>Grewia laevigata</i>	33.33	4	0.007	1.30	0.37	0.021	1.69	0.56
33	<i>Phoebe cathia</i>	33.33	4	0.005	1.30	0.37	0.015	1.69	0.56
34	<i>Milletia pachycarpa</i>	33.33	4	0.004	1.30	0.37	0.010	1.68	0.56
35	<i>Alangium chinensis</i>	33.33	4	0.003	1.30	0.37	0.010	1.68	0.56
36	<i>Aegialitis rotundifolia</i>	33.33	4	0.002	1.30	0.37	0.006	1.68	0.56
37	<i>Ardisia attenuata</i>	33.33	4	0.002	1.30	0.37	0.006	1.68	0.56
38	<i>Canthium berberidifolium</i>	33.33	4	0.001	1.30	0.37	0.002	1.67	0.56
39	<i>Rubus rugosus</i>	33.33	4	0.000	1.30	0.37	0.001	1.67	0.56
40	<i>Dalbergia oliveri</i>	33.33	2	0.029	1.30	0.19	0.082	1.57	0.52
41	<i>Ilex umbellulata</i>	33.33	2	0.017	1.30	0.19	0.049	1.53	0.51
42	<i>Litsea monopetala</i>	33.33	2	0.002	1.30	0.19	0.006	1.49	0.50
43	<i>Sorbus granulosa</i>	33.33	2	0.002	1.30	0.19	0.005	1.49	0.50
44	<i>Eurya nitida</i>	33.33	2	0.001	1.30	0.19	0.002	1.49	0.50
45	<i>Terminalia chebula</i>	33.33	2	0.001	1.30	0.19	0.002	1.49	0.50
46	<i>Tetrastigma</i>	33.33	2	0.0004	1.30	0.19	0.001	1.49	0.50
47	<i>Ficus hispida</i>	33.33	2	0.0003	1.30	0.19	0.001	1.49	0.50
48	<i>Macaranga kurzii</i>	33.33	2	0.0003	1.30	0.19	0.001	1.49	0.50
49	<i>Glochidion hirsutum</i>	33.33	2	0.0003	1.30	0.19	0.001	1.49	0.50
50	<i>Turpinia cochinchinensis</i>	33.33	2	0.0003	1.30	0.19	0.001	1.49	0.50
51	<i>Gaultheria notabilis</i>	33.33	2	0.0001	1.30	0.19	0.000	1.49	0.50
52	<i>Stereospermum neuranthum</i>	33.33	2	0.0001	1.30	0.19	0.000	1.49	0.50
53	<i>Fraxinus floribunda</i>	33.33	2	0.0001	1.30	0.19	0.000	1.49	0.50
Total		2,566.67	1,119	34.92	100.00	100.00	100.00	300.00	100.00

Appendix Table 1-1 (Continued)

No	Species	Frequency (%)	Density (trees/ha)	Basal area (m ² /ha)	Relative (%)			IVI	
					Frequency	Density	Dominance	(300)	(%)
34 year-old pine plantation									
1	<i>Pinus kesiya</i>	100.00	206	15.46	3.53	19.45	46.25	69.22	23.07
2	<i>Castanopsis purpurea</i>	100.00	188	7.605	3.53	17.68	22.75	43.96	14.65
3	<i>Quercus vestita</i>	100.00	42	3.124	3.53	3.93	9.344	16.80	5.60
4	<i>Phyllanthus emblica</i>	100.00	106	0.145	3.53	10.02	0.433	13.98	4.66
5	<i>Wendlandia tinctoria x</i>	100.00	88	0.579	3.53	8.25	1.733	13.51	4.50
6	<i>Schima wallichii</i>	100.00	33	2.038	3.53	3.14	6.097	12.77	4.26
7	<i>Quercus brandisiana</i>	33.33	50	1.516	1.18	4.72	4.536	10.43	3.48
8	<i>Dalbergia assamica</i>	100.00	54	0.464	3.53	5.11	1.389	10.03	3.34
9	<i>Aporosa villosa</i>	100.00	48	0.298	3.53	4.52	0.890	8.94	2.98
10	<i>Craibiodendron stellatum</i>	100.00	27	0.152	3.53	2.55	0.456	6.54	2.18
11	<i>Glochidion sphaerogynum</i>	100.00	19	0.177	3.53	1.77	0.528	5.83	1.94
12	<i>Eriolaena candollei</i>	100.00	10	0.070	3.53	0.98	0.210	4.72	1.57
13	<i>Cycas pectinata</i>	66.67	10	0.419	2.35	0.98	1.254	4.59	1.53
14	<i>Glochidion hirsutum</i>	66.67	15	0.083	2.35	1.38	0.247	3.98	1.33
15	<i>Vaccinium sprengelii</i>	66.67	13	0.078	2.35	1.18	0.234	3.77	1.26
16	<i>Protium serratum</i>	66.67	13	0.004	2.35	1.18	0.011	3.54	1.18
17	<i>Lithocarpus elegans</i>	66.67	6	0.187	2.35	0.59	0.560	3.50	1.17
18	<i>Albizia odoratissima</i>	66.67	10	0.043	2.35	0.98	0.128	3.46	1.15
19	<i>Antidesma acidum</i>	66.67	8	0.012	2.35	0.79	0.036	3.17	1.06
20	<i>Phoebe paniculata</i>	66.67	8	0.002	2.35	0.79	0.007	3.15	1.05
21	<i>Syzygium cumini</i>	33.33	2	0.580	1.18	0.20	1.734	3.11	1.04
22	<i>Ameslea fragrans</i>	66.67	6	0.016	2.35	0.59	0.048	2.99	1.00
23	<i>Engelhardtia spicata</i>	66.67	6	0.014	2.35	0.59	0.041	2.98	0.99
24	<i>Pavetta tomentosa</i>	66.67	6	0.008	2.35	0.59	0.023	2.97	0.99
25	<i>Syzygium albiflorum</i>	66.67	6	0.005	2.35	0.59	0.014	2.96	0.99
26	<i>Styrax benzoides</i>	66.67	4	0.014	2.35	0.39	0.041	2.79	0.93
27	<i>Maesa permollis</i>	33.33	6	0.116	1.18	0.59	0.346	2.11	0.70
28	<i>Viburnum sambucinum</i>	33.33	8	0.007	1.18	0.79	0.020	1.98	0.66
29	<i>Rhus javanica</i>	33.33	8	0.002	1.18	0.79	0.006	1.97	0.66
30	<i>Canthium sp.</i>	33.33	6	0.001	1.18	0.59	0.002	1.77	0.59
31	<i>Helicia nilagirica</i>	33.33	4	0.010	1.18	0.39	0.029	1.60	0.53
32	<i>Dillenia aurea</i>	33.33	4	0.003	1.18	0.39	0.009	1.58	0.53
33	<i>Lithocarpus sootepensis</i>	33.33	2	0.066	1.18	0.20	0.197	1.57	0.52
34	<i>Stereospermum colias</i>	33.33	2	0.054	1.18	0.20	0.161	1.53	0.51
35	<i>Horsfieldia tomentosa</i>	33.33	2	0.019	1.18	0.20	0.057	1.43	0.48
36	<i>Canarium subulatum</i>	33.33	2	0.018	1.18	0.20	0.054	1.43	0.48
37	<i>Albizia chinensis</i>	33.33	2	0.015	1.18	0.20	0.045	1.42	0.47
38	<i>Diospyros glandulosa</i>	33.33	2	0.010	1.18	0.20	0.029	1.40	0.47
39	<i>Gluta usitata</i>	33.33	2	0.010	1.18	0.20	0.029	1.40	0.47
40	<i>Dalbergia cultrata</i>	33.33	2	0.004	1.18	0.20	0.013	1.39	0.46
41	<i>Symplocos racemosa</i>	33.33	2	0.001	1.18	0.20	0.004	1.38	0.46
42	<i>Schoepfia fragrans</i>	33.33	2	0.001	1.18	0.20	0.002	1.38	0.46
43	<i>Litsea cubeba</i>	33.33	2	0.001	1.18	0.20	0.002	1.38	0.46
44	<i>Castanopsis diversifolia</i>	33.33	2	0.001	1.18	0.20	0.002	1.37	0.46
45	<i>Tristania rufescens</i>	33.33	2	0.001	1.18	0.20	0.002	1.37	0.46
46	<i>Blumea balsamifera</i>	33.33	2	0.001	1.18	0.20	0.002	1.37	0.46
47	<i>Tadehagi triquetrum</i>	33.33	2	0.0004	1.18	0.20	0.001	1.37	0.46
48	<i>Eurya nitida</i>	33.33	2	0.0004	1.18	0.20	0.001	1.37	0.46
49	<i>Celastrus paniculata</i>	33.33	2	0.0003	1.18	0.20	0.001	1.37	0.46
50	<i>Engelhardtia serrata</i>	33.33	2	0.0003	1.18	0.20	0.001	1.37	0.46
Total		2,833.33	1,060	33.43	100.00	100.00	100.00	300.0	100.0

Appendix Table 1-2 Quantitative characteristics of tree species in fifteen adjacent fragmented forests

FF	No	Species	No. of trees	Basal area (m ² /ha)	Relative (%)		IVI	
					Density	Dominance	(200)	(%)
1	1	<i>Pinus kesiya</i>	188	20.12	15.71	63.57	79.28	39.64
	2	<i>Wendlandia tinctoria</i>	300	1.69	25.13	5.35	30.49	15.24
	3	<i>Tristania rufescens</i>	269	1.02	22.51	3.21	25.72	12.86
	4	<i>Quercus vestita</i>	156	1.10	13.09	3.48	16.57	8.29
	5	<i>Schima wallichii</i>	50	2.28	4.19	7.20	11.39	5.69
	6	<i>Helicia nilagirica</i>	75	1.16	6.28	3.65	9.94	4.97
	7	<i>Dalbergia cultrata</i>	38	1.81	3.14	5.73	8.87	4.44
	8	<i>Lithocarpus elegans</i>	19	1.19	1.57	3.76	5.33	2.66
	9	<i>Craibiodendron stellatum</i>	31	0.17	2.62	0.52	3.14	1.57
	10	<i>Glochidion sphaerogynum</i>	19	0.33	1.57	1.05	2.62	1.31
	11	<i>Castanopsis purpurea</i>	6	0.40	0.52	1.26	1.78	0.89
	12	<i>Vaccinium sprengelii</i>	19	0.05	1.57	0.15	1.72	0.86
	13	<i>Erythrina subumbrans</i>	6	0.22	0.52	0.71	1.23	0.61
	14	<i>Castanopsis diversifolia</i>	6	0.09	0.52	0.29	0.81	0.41
	15	<i>Engelhardtia spicata</i>	6	0.02	0.52	0.05	0.57	0.29
	16	<i>Phyllanthus emblica</i>	6	0.002	0.52	0.01	0.53	0.27
Total			1,194	31.65	100	100	200	100
2	1	<i>Pinus kesiya</i>	219	13.50	14.58	53.73	68.31	34.16
	2	<i>Tristania rufescens</i>	356	1.63	23.75	6.49	30.24	15.12
	3	<i>Quercus vestita</i>	175	1.74	11.67	6.93	18.60	9.30
	4	<i>Vaccinium sprengelii</i>	225	0.45	15.00	1.80	16.80	8.40
	5	<i>Lithocarpus elegans</i>	144	1.80	9.58	7.18	16.76	8.38
	6	<i>Schima wallichii</i>	75	1.38	5.00	5.48	10.48	5.24
	7	<i>Castanopsis purpurea</i>	56	1.39	3.75	5.52	9.27	4.63
	8	<i>Lithocarpus sootepensis</i>	56	0.69	3.75	2.74	6.49	3.25
	9	<i>Myrica esculenta</i>	25	0.82	1.67	3.25	4.92	2.46
	10	<i>Wendlandia tinctoria</i>	44	0.19	2.92	0.76	3.67	1.84
	11	<i>Helicia nilagirica</i>	38	0.28	2.50	1.11	3.61	1.81
	12	<i>Albizia odoratissima</i>	13	0.46	0.83	1.82	2.66	1.33
	13	<i>Betula alnoides</i>	6	0.31	0.42	1.24	1.65	0.83
	14	<i>Castanopsis diversifolia</i>	6	0.29	0.42	1.16	1.57	0.79
	15	<i>Glochidion sphaerogynum</i>	13	0.08	0.83	0.32	1.16	0.58
	16	<i>Anneslea fragrans</i>	13	0.03	0.83	0.12	0.95	0.48
	17	<i>Eurya nitida</i>	13	0.03	0.83	0.11	0.95	0.47
	18	<i>Craibiodendron stellatum</i>	6	0.02	0.42	0.08	0.50	0.25
	19	<i>Castanopsis acuminatissima</i>	6	0.02	0.42	0.07	0.49	0.24
	20	<i>Semecarpus albescens</i>	6	0.01	0.42	0.04	0.46	0.23
	21	<i>Engelhardtia spicata</i>	6	0.01	0.42	0.04	0.46	0.23
Total			1,500	25.12	100	100	200	100
3	1	<i>Pinus kesiya</i>	119	8.44	9.55	25.67	35.22	17.61
	2	<i>Castanopsis purpurea</i>	44	5.34	3.52	16.24	19.76	9.88
	3	<i>Schima wallichii</i>	106	3.08	8.54	9.36	17.90	8.95
	4	<i>Phyllanthus emblica</i>	156	0.58	12.56	1.75	14.31	7.16
	5	<i>Lithocarpus fenestratus</i>	63	2.42	5.03	7.36	12.39	6.19
	6	<i>Callicarpa arborea</i>	63	2.23	5.03	6.77	11.80	5.90
	7	<i>Lithocarpus elegans</i>	63	1.91	5.03	5.80	10.83	5.41
	8	<i>Dalbergia cultrata</i>	63	1.72	5.03	5.24	10.27	5.13
	9	<i>Ternstroemia gymnanthera</i>	63	1.05	5.03	3.19	8.21	4.11
	10	<i>Engelhardtia spicata</i>	63	0.61	5.03	1.86	6.89	3.44
	11	<i>Stereospermum neuranthum</i>	63	0.47	5.03	1.42	6.45	3.22
	12	<i>Tristania rufescens</i>	44	0.27	3.52	0.82	4.34	2.17
	13	<i>Quercus vestita</i>	25	0.56	2.01	1.71	3.72	1.86
	14	<i>Glochidion sphaerogynum</i>	31	0.25	2.51	0.76	3.27	1.64
	15	<i>Engelhardtia serrata</i>	13	0.64	1.01	1.95	2.95	1.48

Appendix Table 1-2 (Continued)

FF	No	Species	No. of trees	Basal area (m ² /ha)	Relative (%)		IVI	
					Density	Dominance	(200)	(%)
3	16	<i>Craibiodendron stellatum</i>	25	0.29	2.01	0.87	2.88	1.44
	17	<i>Castanopsis acuminatissima</i>	13	0.53	1.01	1.61	2.61	1.31
	18	<i>Helicia terminalis</i>	13	0.35	1.01	1.07	2.08	1.04
	19	<i>Terminalia chebula</i>	6	0.44	0.50	1.34	1.85	0.92
	20	<i>Wendlandia tinctoria</i>	19	0.09	1.51	0.28	1.79	0.89
	21	<i>Diospyros glandulosa</i>	19	0.07	1.51	0.21	1.72	0.86
	22	<i>Bombax anceps</i>	6	0.35	0.50	1.08	1.58	0.79
	23	<i>Colona flagrocarpa</i>	13	0.14	1.01	0.44	1.44	0.72
	24	<i>Helicia nilagirica</i>	6	0.30	0.50	0.91	1.41	0.71
	25	<i>Erythrina subumbrans</i>	13	0.06	1.01	0.19	1.20	0.60
	26	<i>Syzygium albiflorum</i>	13	0.06	1.01	0.19	1.19	0.60
	27	<i>Aporosa villosa</i>	13	0.05	1.01	0.14	1.15	0.57
	28	<i>Albizia chinensis</i>	6	0.20	0.50	0.62	1.12	0.56
	29	<i>Catunaregam tomentosa</i>	13	0.02	1.01	0.07	1.07	0.54
	30	<i>Litsea glutinosa</i>	13	0.01	1.01	0.03	1.04	0.52
	31	<i>Semecarpus albescens</i>	13	0.01	1.01	0.02	1.03	0.51
	32	<i>Ampelocissus martinii</i>	6	0.08	0.50	0.23	0.73	0.37
	33	<i>Milletia pachycarpa</i>	6	0.06	0.50	0.17	0.67	0.34
	34	<i>Styrax benzoides</i>	6	0.04	0.50	0.12	0.62	0.31
	35	<i>Albizia odoratissima</i>	6	0.03	0.50	0.10	0.60	0.30
	36	<i>Syzygium cumini</i>	6	0.03	0.50	0.09	0.60	0.30
	37	<i>Castanopsis diversifolia</i>	6	0.03	0.50	0.09	0.59	0.30
	38	<i>Eurya nitida</i>	6	0.02	0.50	0.07	0.57	0.29
	39	<i>Vaccinium sprengelii</i>	6	0.02	0.50	0.06	0.56	0.28
	40	<i>Phoebe paniculata</i>	6	0.01	0.50	0.03	0.53	0.26
	41	<i>Beilschmiedia gammieana</i>	6	0.01	0.50	0.03	0.53	0.26
	42	<i>Ilex umbellulata</i>	6	0.01	0.50	0.02	0.52	0.26
Total			1,244	32.88	100	100	200	100
4	1	<i>Pinus kesiya</i>	88	10.03	9.66	33.88	43.54	21.77
	2	<i>Vaccinium sprengelii</i>	269	1.49	29.66	5.04	34.70	17.35
	3	<i>Castanopsis acuminatissima</i>	100	6.21	11.03	20.98	32.01	16.01
	4	<i>Quercus brandisiana</i>	38	5.43	4.14	18.33	22.47	11.23
	5	<i>Anneslea fragrans</i>	75	1.56	8.28	5.27	13.54	6.77
	6	<i>Tristania rufescens</i>	75	0.77	8.28	2.59	10.87	5.43
	7	<i>Craibiodendron stellatum</i>	75	0.18	8.28	0.60	8.88	4.44
	8	<i>Castanopsis purpurea</i>	19	1.98	2.07	6.70	8.77	4.39
	9	<i>Ternstroemia gymnanthera</i>	38	0.56	4.14	1.91	6.04	3.02
	10	<i>Lithocarpus polystachyus</i>	13	1.08	1.38	3.66	5.04	2.52
	11	<i>Styrax benzoides</i>	25	0.07	2.76	0.25	3.01	1.50
	12	<i>Semecarpus albescens</i>	25	0.04	2.76	0.14	2.90	1.45
	13	<i>Schima wallichii</i>	19	0.06	2.07	0.19	2.26	1.13
	14	<i>Shorea roxburghii</i>	13	0.07	1.38	0.25	1.63	0.81
	15	<i>Myrica esculenta</i>	6	0.03	0.69	0.10	0.79	0.40
	16	<i>Glochidion sphaerogynum</i>	6	0.02	0.69	0.05	0.74	0.37
	17	<i>Viburnum sambucinum</i>	6	0.01	0.69	0.02	0.71	0.36
	18	<i>Dalbergia cultrata</i>	6	0.004	0.69	0.01	0.70	0.35
	19	<i>Wendlandia tinctoria</i>	6	0.002	0.69	0.01	0.70	0.35
	20	<i>Pavetta tomentosa</i>	6	0.002	0.69	0.01	0.70	0.35
Total			906	29.61	100	100	200	100

Appendix Table 1-2 (Continued)

FF	No	Species	No. of trees	Basal area (m ² /ha)	Relative (%)		IVI	
					Density	Dominance	(200)	(%)
5	1	<i>Castanopsis acuminatissima</i>	156	8.61	14.79	30.80	45.60	22.80
	2	<i>Tristania rufescens</i>	200	2.78	18.93	9.93	28.87	14.43
	3	<i>Quercus brandisiana</i>	75	5.41	7.10	19.34	26.44	13.22
	4	<i>Pinus kesiya</i>	25	4.62	2.37	16.51	18.87	9.44
	5	<i>Vaccinium sprengelii</i>	150	1.21	14.20	4.34	18.54	9.27
	6	<i>Anneslea fragrans</i>	113	1.88	10.65	6.73	17.38	8.69
	7	<i>Craibiodendron stellatum</i>	69	0.69	6.51	2.48	8.99	4.49
	8	<i>Semecarpus albescens</i>	56	0.38	5.33	1.36	6.69	3.34
	9	<i>Castanopsis purpurea</i>	38	0.83	3.55	2.96	6.51	3.26
	10	<i>Styrax benzoides</i>	25	0.39	2.37	1.39	3.75	1.88
	11	<i>Wendlandia tinctoria</i>	25	0.13	2.37	0.45	2.82	1.41
	12	<i>Aporosa villosa</i>	25	0.07	2.37	0.24	2.61	1.30
	13	<i>Dalbergia cultrata</i>	19	0.12	1.78	0.43	2.21	1.10
	14	<i>Schima wallichii</i>	13	0.22	1.18	0.79	1.97	0.99
	15	<i>Lithocarpus polystachyus</i>	13	0.21	1.18	0.74	1.92	0.96
	16	<i>Viburnum sambucinum</i>	19	0.03	1.78	0.09	1.87	0.93
	17	<i>Ternstroemia gymnanthera</i>	13	0.14	1.18	0.51	1.69	0.85
	18	<i>Quercus vestita</i>	6	0.17	0.59	0.60	1.19	0.59
	19	<i>Lithocarpus elegans</i>	6	0.07	0.59	0.25	0.84	0.42
	20	<i>Canarium subulatum</i>	6	0.01	0.59	0.05	0.64	0.32
	21	<i>Phyllanthus emblica</i>	6	0.003	0.59	0.01	0.60	0.30
Total			1,056	27.96	100	100	200	100
6	1	<i>Pinus kesiya</i>	44	10.14	7.87	38.67	46.54	23.27
	2	<i>Castanopsis acuminatissima</i>	75	5.24	13.48	19.96	33.45	16.72
	3	<i>Tristania rufescens</i>	106	2.44	19.10	9.31	28.41	14.21
	4	<i>Vaccinium sprengelii</i>	81	1.50	14.61	5.72	20.33	10.16
	5	<i>Anneslea fragrans</i>	44	1.64	7.87	6.26	14.12	7.06
	6	<i>Semecarpus albescens</i>	25	2.00	4.49	7.62	12.11	6.06
	7	<i>Craibiodendron stellatum</i>	44	0.45	7.87	1.70	9.56	4.78
	8	<i>Wendlandia tinctoria</i>	38	0.27	6.74	1.02	7.76	3.88
	9	<i>Lithocarpus fenestratus</i>	25	0.54	4.49	2.05	6.55	3.27
	10	<i>Lithocarpus polystachyus</i>	19	0.39	3.37	1.49	4.87	2.43
	11	<i>Quercus vestita</i>	6	0.95	1.12	3.61	4.73	2.37
	12	<i>Castanopsis purpurea</i>	19	0.28	3.37	1.09	4.46	2.23
	13	<i>Styrax benzoides</i>	13	0.05	2.25	0.21	2.45	1.23
	14	<i>Quercus brandisiana</i>	6	0.33	1.12	1.27	2.40	1.20
	15	<i>Viburnum sambucinum</i>	6	0.003	1.12	0.01	1.14	0.57
	16	<i>Aporosa villosa</i>	6	0.001	1.12	0.00	1.13	0.56
Total			556	26.22	100	100	200	100
7	1	<i>Castanopsis acuminatissima</i>	144	7.70	10.36	34.07	44.43	22.22
	2	<i>Pinus kesiya</i>	81	7.08	5.86	31.33	37.19	18.59
	3	<i>Vaccinium sprengelii</i>	169	0.95	12.16	4.22	16.38	8.19
	4	<i>Tristania rufescens</i>	106	1.35	7.66	5.98	13.64	6.82
	5	<i>Viburnum sambucinum</i>	156	0.16	11.26	0.70	11.96	5.98
	6	<i>Semecarpus albescens</i>	69	0.68	4.95	3.02	7.98	3.99
	7	<i>Styrax benzoides</i>	94	0.24	6.76	1.05	7.81	3.90
	8	<i>Craibiodendron stellatum</i>	56	0.56	4.05	2.50	6.55	3.28
	9	<i>Dalbergia cultrata</i>	75	0.21	5.41	0.95	6.35	3.18
	10	<i>Quercus vestita</i>	19	0.90	1.35	3.96	5.31	2.66
	11	<i>Anneslea fragrans</i>	31	0.68	2.25	2.99	5.24	2.62
	12	<i>Quercus brandisiana</i>	25	0.73	1.80	3.21	5.01	2.51
	13	<i>Lithocarpus polystachyus</i>	31	0.29	2.25	1.29	3.54	1.77
	14	<i>Helicia nilagirica</i>	38	0.11	2.70	0.49	3.19	1.60
	15	<i>Aporosa villosa</i>	38	0.08	2.70	0.37	3.07	1.54
	16	<i>Phyllanthus emblica</i>	38	0.06	2.70	0.28	2.98	1.49
	17	<i>Ternstroemia gymnanthera</i>	25	0.21	1.80	0.92	2.72	1.36
	18	<i>Glochidion sphaerogynum</i>	31	0.03	2.25	0.13	2.38	1.19
	19	<i>Wendlandia tinctoria</i>	19	0.14	1.35	0.61	1.96	0.98
	20	<i>Castanopsis purpurea</i>	13	0.21	0.90	0.95	1.85	0.92

Appendix Table 1-2 (Continued)

FF	No	Species	No. of trees	Basal area (m ² /ha)	Relative (%)		IVI	
					Density	Dominance	(200)	(%)
7	21	<i>Schima wallichii</i>	19	0.09	1.35	0.40	1.75	0.87
	22	<i>Diospyros glandulosa</i>	19	0.02	1.35	0.07	1.42	0.71
	23	<i>Lithocarpus elegans</i>	13	0.04	0.90	0.19	1.10	0.55
	24	<i>Catunaregam tomentosa</i>	13	0.02	0.90	0.08	0.98	0.49
	25	<i>Rhus javanica</i>	13	0.01	0.90	0.05	0.95	0.47
	26	<i>Dillenia aurea</i>	6	0.01	0.45	0.06	0.51	0.26
	27	<i>Stereospermum neuranthum</i>	6	0.01	0.45	0.04	0.49	0.24
	28	<i>Terminalia chebula</i>	6	0.01	0.45	0.03	0.48	0.24
	29	<i>Albizia chinensis</i>	6	0.004	0.45	0.02	0.47	0.23
	30	<i>Phoebe paniculata</i>	6	0.003	0.45	0.01	0.46	0.23
	31	<i>Vernonia volkameriifolia</i>	6	0.003	0.45	0.01	0.46	0.23
	32	<i>Helicia terminalis</i>	6	0.002	0.45	0.01	0.46	0.23
	33	<i>Eurya nitida</i>	6	0.002	0.45	0.01	0.46	0.23
	34	<i>Lithocarpus fenestratus</i>	6	0.001	0.45	0.01	0.46	0.23
Total			1,388	22.59	100	100	200	100
8	1	<i>Tristania rufescens</i>	275	4.23	29.33	18.16	47.49	23.74
	2	<i>Pinus kesiya</i>	44	7.83	4.67	33.57	38.24	19.12
	3	<i>Castanopsis acuminatissima</i>	94	4.10	10.00	17.61	27.61	13.80
	4	<i>Quercus brandisiana</i>	69	3.28	7.33	14.08	21.42	10.71
	5	<i>Vaccinium sprengelii</i>	113	0.82	12.00	3.51	15.51	7.76
	6	<i>Lithocarpus polystachyus</i>	44	0.79	4.67	3.39	8.05	4.03
	7	<i>Craibiodendron stellatum</i>	44	0.27	4.67	1.18	5.85	2.92
	8	<i>Quercus vestita</i>	19	0.76	2.00	3.26	5.26	2.63
	9	<i>Dalbergia cultrata</i>	38	0.12	4.00	0.53	4.53	2.26
	10	<i>Aporosa villosa</i>	31	0.25	3.33	1.08	4.41	2.21
	11	<i>Phyllanthus emblica</i>	31	0.02	3.33	0.11	3.44	1.72
	12	<i>Semecarpus albescens</i>	19	0.25	2.00	1.09	3.09	1.54
	13	<i>Gardenia sootepensis</i>	13	0.09	1.33	0.37	1.70	0.85
	14	<i>Anneslea fragrans</i>	6	0.24	0.67	1.03	1.70	0.85
	15	<i>Dolichandrone serrulata</i>	13	0.07	1.33	0.30	1.63	0.82
	16	<i>Quercus kingiana</i>	13	0.03	1.33	0.14	1.47	0.74
	17	<i>Stereospermum neuranthum</i>	13	0.03	1.33	0.14	1.47	0.74
	18	<i>Castanopsis diversifolia</i>	13	0.03	1.33	0.11	1.44	0.72
	19	<i>Glochidion sphaerogynum</i>	13	0.02	1.33	0.07	1.40	0.70
	20	<i>Lithocarpus fenestratus</i>	6	0.03	0.67	0.11	0.78	0.39
	21	<i>Lithocarpus elegans</i>	6	0.02	0.67	0.10	0.77	0.38
	22	<i>Styrax benzoides</i>	6	0.01	0.67	0.05	0.72	0.36
	23	<i>Erythrina subumbrans</i>	6	0.003	0.67	0.01	0.68	0.34
	24	<i>Engelhardtia spicata</i>	6	0.002	0.67	0.01	0.68	0.34
	25	<i>Dillenia aurea</i>	6	0.001	0.67	0.00	0.67	0.34
Total			938	23.32	100	100	200	100
9	1	<i>Castanopsis acuminatissima</i>	125	9.26	10.81	35.83	46.64	23.32
	2	<i>Quercus brandisiana</i>	194	3.67	16.76	14.22	30.97	15.49
	3	<i>Pinus kesiya</i>	44	6.72	3.78	25.99	29.77	14.89
	4	<i>Tristania rufescens</i>	188	0.82	16.22	3.16	19.38	9.69
	5	<i>Vaccinium sprengelii</i>	100	0.54	8.65	2.10	10.75	5.37
	6	<i>Semecarpus albescens</i>	81	0.27	7.03	1.03	8.06	4.03
	7	<i>Schima wallichii</i>	25	1.25	2.16	4.85	7.01	3.50
	8	<i>Castanopsis purpurea</i>	31	0.93	2.70	3.60	6.30	3.15
	9	<i>Craibiodendron stellatum</i>	56	0.18	4.86	0.71	5.57	2.79
	10	<i>Lithocarpus fenestratus</i>	6	0.80	0.54	3.10	3.64	1.82
	11	<i>Viburnum sambucinum</i>	38	0.08	3.24	0.32	3.57	1.78
	12	<i>Wendlandia tinctoria</i>	31	0.14	2.70	0.56	3.26	1.63
	13	<i>Lithocarpus sootepensis</i>	25	0.23	2.16	0.91	3.07	1.53
	14	<i>Aporosa villosa</i>	31	0.05	2.70	0.19	2.90	1.45
	15	<i>Helicia nilagirica</i>	19	0.28	1.62	1.10	2.72	1.36
	16	<i>Glochidion hirsutum</i>	25	0.08	2.16	0.32	2.49	1.24
	17	<i>Phyllanthus emblica</i>	25	0.02	2.16	0.08	2.24	1.12
	18	<i>Lithocarpus polystachyus</i>	19	0.12	1.62	0.48	2.10	1.05
	19	<i>Anneslea fragrans</i>	19	0.03	1.62	0.11	1.73	0.87
	20	<i>Quercus vestita</i>	13	0.06	1.08	0.22	1.30	0.65

Appendix Table 1-2 (Continued)

FF	No	Species	No. of trees	Basal area (m ² /ha)	Relative (%)		IVI	
					Density	Dominance	(200)	(%)
9	21	<i>Glochidion sphaerogynum</i>	13	0.02	1.08	0.09	1.17	0.58
	22	<i>Styrax benzoides</i>	6	0.14	0.54	0.55	1.09	0.54
	23	<i>Artocarpus gomezianus</i>	6	0.06	0.54	0.22	0.76	0.38
	24	<i>Dolichandrone serrulata</i>	6	0.04	0.54	0.16	0.70	0.35
	25	<i>Catunaregam tomentosa</i>	6	0.01	0.54	0.03	0.57	0.28
	26	<i>Gardenia sootepensis</i>	6	0.01	0.54	0.03	0.57	0.28
	27	<i>Quercus kingiana</i>	6	0.01	0.54	0.02	0.56	0.28
	28	<i>Pavetta tomentosa</i>	6	0.005	0.54	0.02	0.56	0.28
	29	<i>Archidendron clypearia</i>	6	0.004	0.54	0.01	0.55	0.28
Total			1,156	25.85	100	100	200	100
10	1	<i>Pinus kesiya</i>	138	6.88	13.84	39.39	53.23	26.61
	2	<i>Quercus brandisiana</i>	119	3.05	11.95	17.47	29.42	14.71
	3	<i>Tristania rufescens</i>	125	1.69	12.58	9.70	22.28	11.14
	4	<i>Vaccinium sprengelii</i>	156	0.48	15.72	2.74	18.47	9.23
	5	<i>Castanopsis acuminatissima</i>	63	2.09	6.29	11.96	18.25	9.12
	6	<i>Craibiodendron stellatum</i>	81	0.54	8.18	3.08	11.26	5.63
	7	<i>Dalbergia cultrata</i>	50	0.51	5.03	2.94	7.97	3.98
	8	<i>Lithocarpus elegans</i>	38	0.54	3.77	3.11	6.89	3.44
	9	<i>Lithocarpus sootepensis</i>	25	0.15	2.52	0.86	3.37	1.69
	10	<i>Phyllanthus emblica</i>	25	0.09	2.52	0.51	3.03	1.51
	11	<i>Gluta usitata</i>	6	0.41	0.63	2.36	2.99	1.49
	12	<i>Quercus kingiana</i>	19	0.16	1.89	0.94	2.83	1.41
	13	<i>Terminalia chebula</i>	13	0.26	1.26	1.47	2.73	1.36
	14	<i>Glochidion sphaerogynum</i>	25	0.04	2.52	0.20	2.72	1.36
	15	<i>Aporosa villosa</i>	25	0.03	2.52	0.15	2.67	1.34
	16	<i>Quercus vestita</i>	6	0.35	0.63	1.99	2.62	1.31
	17	<i>Anneslea fragrans</i>	19	0.10	1.89	0.58	2.47	1.23
	18	<i>Glochidion hirsutum</i>	13	0.01	1.26	0.07	1.33	0.67
	19	<i>Rapanea porteriana</i>	6	0.03	0.63	0.16	0.79	0.40
	20	<i>Albizia odoratissima</i>	6	0.02	0.63	0.12	0.75	0.37
	21	<i>Stereospermum neuranthum</i>	6	0.02	0.63	0.10	0.73	0.36
	22	<i>Celastrus paniculata</i>	6	0.01	0.63	0.05	0.68	0.34
	23	<i>Semecarpus albescens</i>	6	0.004	0.63	0.02	0.65	0.33
	24	<i>Wendlandia tinctoria</i>	6	0.002	0.63	0.01	0.64	0.32
	25	<i>Rhus javanica</i>	6	0.001	0.63	0.01	0.64	0.32
	26	<i>Catunaregam tomentosa</i>	6	0.000	0.63	0.00	0.63	0.32
Total			994	17.46	100	100	200	100
11	1	<i>Wendlandia tinctoria</i>	581	4.85	32.86	15.63	48.49	24.25
	2	<i>Castanopsis acuminatissima</i>	25	5.39	1.41	17.37	18.79	9.39
	3	<i>Lithocarpus elegans</i>	106	3.17	6.01	10.22	16.23	8.11
	4	<i>Castanopsis diversifolia</i>	69	3.35	3.89	10.80	14.69	7.34
	5	<i>Castanopsis purpurea</i>	38	2.98	2.12	9.61	11.74	5.87
	6	<i>Dalbergia cultrata</i>	69	2.03	3.89	6.53	10.42	5.21
	7	<i>Schima wallichii</i>	38	1.85	2.12	5.96	8.08	4.04
	8	<i>Aporosa villosa</i>	94	0.85	5.30	2.73	8.03	4.02
	9	<i>Engelhardtia spicata</i>	44	1.09	2.47	3.52	5.99	2.99
	10	<i>Ternstroemia gymnanthera</i>	50	0.81	2.83	2.62	5.44	2.72
	11	<i>Phyllanthus emblica</i>	63	0.57	3.53	1.85	5.39	2.69
	12	<i>Eriolaena candollei</i>	56	0.58	3.18	1.87	5.05	2.52
	13	<i>Styrax benzoides</i>	44	0.48	2.47	1.56	4.03	2.02
	14	<i>Turpinia cochinchinensis</i>	56	0.14	3.18	0.44	3.62	1.81
	15	<i>Phoebe paniculata</i>	50	0.15	2.83	0.48	3.31	1.66
	16	<i>Helicia terminalis</i>	38	0.33	2.12	1.07	3.19	1.60
	17	<i>Helicia nilagirica</i>	25	0.36	1.41	1.17	2.58	1.29
	18	<i>Pterospermum acerifolium</i>	38	0.07	2.12	0.23	2.35	1.17
	19	<i>Canthium sp.</i>	38	0.01	2.12	0.02	2.14	1.07
	20	<i>Xantolis cambodiana</i>	13	0.44	0.71	1.40	2.11	1.05
	21	<i>Rhus javanica</i>	31	0.01	1.77	0.02	1.79	0.89
	22	<i>Bombax anceps</i>	6	0.35	0.35	1.13	1.48	0.74

Appendix Table 1-2 (Continued)

FF	No	Species	No. of trees	Basal area (m ² /ha)	Relative (%)		IVI		
					Density	Dominance	(200)	(%)	
11	23	<i>Glochidion acuminatum</i>	25	0.01	1.41	0.03	1.44	0.72	
	24	<i>Garuga pinnata</i>	19	0.09	1.06	0.29	1.35	0.68	
	25	<i>Antidesma acidum</i>	19	0.03	1.06	0.10	1.16	0.58	
	26	<i>Protium serratum</i>	19	0.01	1.06	0.02	1.08	0.54	
	27	<i>Buchanania lanzan</i>	13	0.10	0.71	0.33	1.04	0.52	
	28	<i>Stereospermum neuranthum</i>	13	0.09	0.71	0.30	1.01	0.50	
	29	<i>Dalbergia velutina</i>	13	0.08	0.71	0.27	0.97	0.49	
	30	<i>Vernonia volkameriifolia</i>	13	0.08	0.71	0.26	0.97	0.48	
	31	<i>Glochidion sphaerogynum</i>	13	0.07	0.71	0.23	0.94	0.47	
	32	<i>Dillenia aurea</i>	6	0.16	0.35	0.50	0.86	0.43	
	33	<i>Albizia odoratissima</i>	6	0.14	0.35	0.46	0.82	0.41	
	34	<i>Kydia calycina</i>	6	0.13	0.35	0.42	0.77	0.39	
	35	<i>Radermachera ignea</i>	6	0.10	0.35	0.31	0.66	0.33	
	36	<i>Syzygium cumini</i>	6	0.04	0.35	0.11	0.47	0.23	
	37	<i>Milletia pachycarpa</i>	6	0.02	0.35	0.08	0.43	0.22	
	38	<i>Mallotus philippensis</i>	6	0.01	0.35	0.03	0.39	0.19	
	39	<i>Diospyros glandulosa</i>	6	0.003	0.35	0.01	0.36	0.18	
	40	<i>Viburnum sambucinum</i>	6	0.001	0.35	0.00	0.36	0.18	
	Total			1,769	31.01	100	100	200	100
	12	1	<i>Castanopsis acuminatissima</i>	81	7.36	6.47	22.43	28.90	14.45
2		<i>Schima wallichii</i>	138	3.56	10.95	10.85	21.79	10.90	
3		<i>Helicia nilagirica</i>	144	2.50	11.44	7.62	19.06	9.53	
4		<i>Ternstroemia gymnanthera</i>	150	2.05	11.94	6.25	18.19	9.09	
5		<i>Castanopsis diversifolia</i>	75	2.93	5.97	8.93	14.90	7.45	
6		<i>Wendlandia tinctoria</i>	150	0.80	11.94	2.43	14.37	7.18	
7		<i>Lithocarpus elegans</i>	44	2.86	3.48	8.72	12.20	6.10	
8		<i>Engelhardtia spicata</i>	81	1.76	6.47	5.38	11.85	5.92	
9		<i>Pinus kesiya</i>	13	2.40	1.00	7.33	8.32	4.16	
10		<i>Phoebe paniculata</i>	38	0.90	2.99	2.76	5.74	2.87	
11		<i>Elaeocarpus stipularis</i>	19	1.24	1.49	3.79	5.28	2.64	
12		<i>Buchanania lanzan</i>	6	1.43	0.50	4.37	4.87	2.43	
13		<i>Glochidion sphaerogynum</i>	31	0.47	2.49	1.44	3.93	1.97	
14		<i>Dillenia aurea</i>	38	0.25	2.99	0.75	3.73	1.87	
15		<i>Albizia chinensis</i>	19	0.58	1.49	1.75	3.25	1.62	
16		<i>Phyllanthus emblica</i>	31	0.15	2.49	0.46	2.94	1.47	
17		<i>Olea salicifolia</i>	25	0.24	1.99	0.72	2.71	1.36	
18		<i>Diospyros glandulosa</i>	19	0.24	1.49	0.73	2.22	1.11	
19		<i>Engelhardtia serrata</i>	19	0.14	1.49	0.43	1.93	0.96	
20		<i>Ilex umbellulata</i>	19	0.05	1.49	0.15	1.64	0.82	
21		<i>Beilschmiedia gammieana</i>	19	0.02	1.49	0.06	1.55	0.78	
22		<i>Myrica esculenta</i>	13	0.16	1.00	0.48	1.48	0.74	
23		<i>Dalbergia cultrata</i>	6	0.29	0.50	0.88	1.37	0.69	
24		<i>Eurya nitida</i>	13	0.09	1.00	0.26	1.25	0.63	
25		<i>Gardenia sootepensis</i>	6	0.07	0.50	0.21	0.71	0.35	
26		<i>Phoebe cathia</i>	6	0.06	0.50	0.17	0.67	0.33	
27		<i>Ampelocissus martinii</i>	6	0.05	0.50	0.16	0.65	0.33	
28		<i>Garcinia merguensis</i>	6	0.04	0.50	0.14	0.63	0.32	
29		<i>Vernonia volkameriifolia</i>	6	0.03	0.50	0.10	0.60	0.30	
30		<i>Turpinia cochinchinensis</i>	6	0.02	0.50	0.07	0.57	0.29	
31		<i>Litsea glutinosa</i>	6	0.02	0.50	0.06	0.56	0.28	
32		<i>Xantolis cambodiana</i>	6	0.02	0.50	0.05	0.55	0.27	
33		<i>Entada rheedii</i>	6	0.02	0.50	0.05	0.55	0.27	
34		<i>Pyrenaria diospyricarpa</i>	6	0.01	0.50	0.03	0.52	0.26	
35		<i>Syzygium albiflorum</i>	6	0.001	0.50	0.00	0.50	0.25	
Total			1,256	32.80	100	100	200	100	

Appendix Table 1-2 (Continued)

FF	No	Species	No. of trees	Basal area (m ² /ha)	Relative (%)		IVI	
					Density	Dominance	(200)	(%)
13	1	<i>Castanopsis diversifolia</i>	75	12.15	7.10	33.22	40.32	20.16
	2	<i>Ternstroemia gymnanthera</i>	119	3.49	11.24	9.55	20.79	10.39
	3	<i>Schima wallichii</i>	69	3.57	6.51	9.77	16.28	8.14
	4	<i>Helicia nilagirica</i>	56	3.55	5.33	9.71	15.03	7.52
	5	<i>Eurya nitida</i>	138	0.03	13.02	0.08	13.09	6.55
	6	<i>Anneslea fragrans</i>	81	1.87	7.69	5.12	12.81	6.40
	7	<i>Castanopsis armata</i>	6	3.40	0.59	9.30	9.89	4.95
	8	<i>Quercus semiserrata</i>	13	2.23	1.18	6.09	7.27	3.63
	9	<i>Rapanea porteriana</i>	50	0.75	4.73	2.06	6.79	3.40
	10	<i>Wendlandia tinctoria</i>	50	0.51	4.73	1.39	6.12	3.06
	11	<i>Syzygium albiflorum</i>	38	0.78	3.55	2.14	5.69	2.84
	12	<i>Engelhardtia spicata</i>	38	0.66	3.55	1.81	5.36	2.68
	13	<i>Diospyros glandulosa</i>	44	0.33	4.14	0.89	5.03	2.52
	14	<i>Pinus kesiya</i>	25	0.33	2.37	0.91	3.28	1.64
	15	<i>Myrica esculenta</i>	19	0.40	1.78	1.11	2.88	1.44
	16	<i>Trichilla connaroides</i>	25	0.13	2.37	0.34	2.71	1.36
	17	<i>Beilschmiedia gammieana</i>	25	0.05	2.37	0.15	2.51	1.26
	18	<i>Engelhardtia serrata</i>	6	0.69	0.59	1.89	2.48	1.24
	19	<i>Symplocos racemosa</i>	13	0.46	1.18	1.26	2.45	1.22
	20	<i>Ilex umbellulata</i>	19	0.19	1.78	0.52	2.29	1.15
	21	<i>Archidendron clypearia</i>	19	0.02	1.78	0.06	1.84	0.92
	22	<i>Lindera metcalfiana</i>	19	0.01	1.78	0.03	1.80	0.90
	23	<i>Glochidion sphaerogynum</i>	13	0.20	1.18	0.55	1.73	0.87
	24	<i>Magnolia henryi</i>	13	0.15	1.18	0.42	1.60	0.80
	25	<i>Ampelocissus martinii</i>	13	0.06	1.18	0.16	1.35	0.67
	26	<i>Helicia terminalis</i>	6	0.15	0.59	0.42	1.01	0.51
	27	<i>Eriolaena candollei</i>	6	0.15	0.59	0.40	1.00	0.50
	28	<i>Garcinia merguensis</i>	6	0.09	0.59	0.24	0.83	0.41
	29	<i>Cinnamomum iners</i>	6	0.06	0.59	0.17	0.76	0.38
	30	<i>Schefflera bengalensis</i>	6	0.05	0.59	0.13	0.72	0.36
	31	<i>Ficus</i> sp.	6	0.02	0.59	0.05	0.64	0.32
	32	<i>Dillenia aurea</i>	6	0.02	0.59	0.05	0.64	0.32
	33	<i>Mussaenda sandariana</i>	6	0.01	0.59	0.03	0.62	0.31
	34	<i>Glochidion acuminatum</i>	6	0.001	0.59	0.00	0.60	0.30
	35	<i>Xantolis cambodiana</i>	6	0.001	0.59	0.00	0.60	0.30
	36	<i>Phyllanthus emblica</i>	6	0.001	0.59	0.00	0.59	0.30
	37	<i>Phoebe paniculata</i>	6	0.000	0.59	0.00	0.59	0.30
		Total	1,056	36.58	100	100	200	100
14	1	<i>Schima wallichii</i>	194	5.92	12.11	21.90	34.01	17.00
	2	<i>Eurya nitida</i>	250	0.92	15.63	3.39	19.02	9.51
	3	<i>Engelhardtia spicata</i>	69	3.91	4.30	14.49	18.78	9.39
	4	<i>Quercus semiserrata</i>	106	2.88	6.64	10.67	17.31	8.66
	5	<i>Phoebe paniculata</i>	163	1.27	10.16	4.72	14.87	7.44
	6	<i>Helicia nilagirica</i>	38	2.95	2.34	10.90	13.25	6.62
	7	<i>Ternstroemia gymnanthera</i>	75	1.50	4.69	5.56	10.25	5.12
	8	<i>Castanopsis acuminatissima</i>	19	2.10	1.17	7.78	8.95	4.47
	9	<i>Glochidion acuminatum</i>	138	0.04	8.59	0.16	8.75	4.37
	10	<i>Pinus kesiya</i>	6	1.89	0.39	7.00	7.39	3.69
	11	<i>Pyrenaria diospyricarpa</i>	88	0.27	5.47	1.02	6.48	3.24
	12	<i>Lindera metcalfiana</i>	69	0.55	4.30	2.03	6.32	3.16
	13	<i>Diospyros glandulosa</i>	38	0.30	2.34	1.10	3.44	1.72
	14	<i>Phoebe cathia</i>	38	0.19	2.34	0.70	3.04	1.52
	15	<i>Dillenia aurea</i>	19	0.46	1.17	1.72	2.89	1.45
	16	<i>Litsea semecarpifolia</i>	19	0.44	1.17	1.64	2.81	1.41
	17	<i>Cinnamomum porrectum</i>	44	0.00	2.73	0.02	2.75	1.38
	18	<i>Wendlandia tinctoria</i>	31	0.19	1.95	0.71	2.66	1.33

Appendix Table 1-2 (Continued)

FF	No	Species	No. of trees	Basal area (m ² /ha)	Relative (%)		IVI	
					Density	Dominance	(200)	(%)
	19	<i>Saurauia roxburghii</i>	31	0.07	1.95	0.24	2.19	1.10
	20	<i>Archidendron clypearia</i>	13	0.34	0.78	1.26	2.04	1.02
	21	<i>Sarcosperma arboreum</i>	19	0.20	1.17	0.74	1.91	0.96
	22	<i>Helicia terminalis</i>	19	0.17	1.17	0.63	1.80	0.90
	23	<i>Mussaenda sanderiana</i>	25	0.02	1.56	0.07	1.63	0.82
	24	<i>Glochidion sphaerogynum</i>	19	0.05	1.17	0.20	1.38	0.69
	25	<i>Turpinia cochinchinensis</i>	13	0.11	0.78	0.39	1.17	0.59
	26	<i>Symplocos racemosa</i>	13	0.05	0.78	0.18	0.96	0.48
	27	<i>Anneslea fragrans</i>	13	0.05	0.78	0.18	0.96	0.48
	28	<i>Melastoma malabathricum</i>	13	0.01	0.78	0.02	0.80	0.40
	29	<i>Magnolia henryi</i>	6	0.10	0.39	0.37	0.76	0.38
	30	<i>Combretum punctatum</i>	6	0.06	0.39	0.21	0.60	0.30
	31	<i>Litsea glutinosa</i>	6	0.002	0.39	0.01	0.40	0.20
	32	<i>Albizia chinensis</i>	6	0.0004	0.39	0.00	0.39	0.20
	Total		1,600	27.02	100	100	200	100
15	1	<i>Schima wallichii</i>	194	6.40	22.14	25.73	47.88	23.94
	2	<i>Castanopsis diversifolia</i>	119	5.36	13.57	21.55	35.13	17.56
	3	<i>Engelhardtia spicata</i>	75	3.85	8.57	15.50	24.08	12.04
	4	<i>Glochidion acuminatum</i>	131	0.01	15.00	0.05	15.05	7.53
	5	<i>Wendlandia tinctoria</i>	69	1.09	7.86	4.38	12.23	6.12
	6	<i>Elaeocarpus stipularis</i>	6	1.72	0.71	6.92	7.63	3.82
	7	<i>Phoebe cathia</i>	6	1.34	0.71	5.38	6.09	3.05
	8	<i>Ternstroemia gymnanthera</i>	6	1.23	0.71	4.97	5.68	2.84
	9	<i>Diospyros glandulosa</i>	25	0.44	2.86	1.77	4.63	2.32
	10	<i>Helicia terminalis</i>	13	0.68	1.43	2.74	4.17	2.08
	11	<i>Milletia pachycarpa</i>	31	0.00	3.57	0.01	3.58	1.79
	12	<i>Styrax benzoides</i>	6	0.71	0.71	2.86	3.57	1.79
	13	<i>Saurauia roxburghii</i>	25	0.04	2.86	0.17	3.03	1.52
	14	<i>Lithocarpus lindleyanus</i>	13	0.37	1.43	1.48	2.91	1.45
	15	<i>Myrica esculenta</i>	6	0.41	0.71	1.63	2.35	1.17
	16	<i>Glochidion sphaerogynum</i>	19	0.01	2.14	0.03	2.18	1.09
	17	<i>Pyrenaria diospyricarpa</i>	19	0.00	2.14	0.00	2.15	1.07
	18	<i>Litsea glutinosa</i>	6	0.25	0.71	0.99	1.71	0.85
	19	<i>Vitex pinnata</i>	6	0.21	0.71	0.86	1.57	0.79
	20	<i>Eurya nitida</i>	6	0.21	0.71	0.83	1.55	0.77
	21	<i>Eriolaena candollei</i>	6	0.20	0.71	0.79	1.51	0.75
	22	<i>Rapanea porteriana</i>	13	0.01	1.43	0.05	1.47	0.74
	23	<i>Rhus javanica</i>	13	0.01	1.43	0.02	1.45	0.72
	24	<i>Lindera metcalfiana</i>	13	0.00	1.43	0.02	1.45	0.72
	25	<i>Symplocos racemosa</i>	6	0.18	0.71	0.72	1.43	0.72
	26	<i>Albizia odoratissima</i>	6	0.08	0.71	0.32	1.03	0.52
	27	<i>Archidendron clypearia</i>	6	0.04	0.71	0.16	0.88	0.44
	28	<i>Helicia nilagirica</i>	6	0.004	0.71	0.01	0.73	0.36
	29	<i>Phyllanthus emblica</i>	6	0.003	0.71	0.01	0.73	0.36
	30	<i>Trichilla connaroides</i>	6	0.003	0.71	0.01	0.73	0.36
	31	<i>Eurya acuminata</i>	6	0.002	0.71	0.01	0.72	0.36
	32	<i>Beilschmiedia gammieana</i>	6	0.0004	0.71	0.00	0.72	0.36
	Total		875	24.85	100	100	200	100

APPENDIX B

Carbon and Nutrient Storages of Tree Species in Various Areas

Appendix Table 2-1 Carbon and nutrient storages of tree species in a series of pine plantations

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
14 year-old pine plantation							
1	<i>Pinus kesiya</i>	29.8486	138.2753	16.0532	100.3593	175.6772	24.3188
2	<i>Glochidion sphaerogynum</i>	9.9475	111.9630	15.1166	75.9175	162.1019	36.6027
3	<i>Schima wallichii</i>	5.3854	59.7136	8.3404	40.8096	86.8775	19.4587
4	<i>Albizia chinensis</i>	3.4992	38.7735	5.4199	26.5017	56.4271	12.6281
5	<i>Callicarpa arborea</i>	1.7005	18.8902	2.6243	12.8921	27.4694	6.1540
6	<i>Litsea sp.</i>	1.5517	17.3984	2.3658	11.8145	25.2246	5.6782
7	<i>Castanopsis diversifolia</i>	1.4393	15.9156	2.2355	10.8910	23.1768	5.1820
8	<i>Ficus ribes</i>	1.1879	13.1924	1.8328	9.0031	19.1866	4.2961
9	<i>Eriolaena candollei</i>	1.0550	11.7326	1.6255	8.0020	17.0548	3.8229
10	<i>Myrica esculenta</i>	0.9142	10.1997	1.4034	6.9456	14.8106	3.3264
11	<i>Syzygium cumini</i>	0.8577	9.4860	1.3326	6.4917	13.8129	3.0893
12	<i>Engelhardtia spicata</i>	0.8313	9.3405	1.2663	6.3395	13.5307	3.0527
13	<i>Archidendron clypearia</i>	0.8173	9.0218	1.2725	6.1798	13.1451	2.9368
14	<i>Ficus callosa</i>	0.7715	8.6982	1.1688	5.8910	12.5874	2.8434
15	<i>Albizia odoratissima</i>	0.6300	6.9690	0.9775	4.7671	10.1477	2.2686
16	<i>Phyllanthus emblica</i>	0.3598	4.1483	0.5347	2.7860	5.9550	1.3695
17	<i>Phoebe lanceolata</i>	0.3131	3.4859	0.4814	2.3755	5.0659	1.1355
18	<i>Grewia laevigata</i>	0.3033	3.3782	0.4662	2.3017	4.9088	1.1005
19	<i>Litsea monopetala</i>	0.1212	1.3741	0.1826	0.9284	1.9846	0.4502
20	<i>Colona flagrocarpa</i>	0.0963	1.0966	0.1444	0.7395	1.5812	0.3599
21	<i>Memecylon celastrinum</i>	0.0950	1.0818	0.1425	0.7296	1.5600	0.3550
22	<i>Ternstroemia gymnanthera</i>	0.0817	0.9380	0.1219	0.6309	1.3488	0.3089
23	<i>Wendlandia tinctoria</i>	0.0715	0.8192	0.1068	0.5513	1.1788	0.2696
24	<i>Eurya nitida</i>	0.0642	0.7285	0.0966	0.4920	1.0519	0.2387
25	<i>Glochidion hirsutum</i>	0.0613	0.7086	0.0909	0.4754	1.0163	0.2342
26	<i>Horsfieldia tomentosa</i>	0.0440	0.5079	0.0653	0.3409	0.7289	0.1677
27	<i>Dolichandrone serrulata</i>	0.0420	0.4872	0.0620	0.3265	0.6975	0.1615
28	<i>Aporosa villosa</i>	0.0414	0.4783	0.0615	0.3211	0.6864	0.1580
29	<i>Syzygium albiflorum</i>	0.0288	0.3409	0.0422	0.2273	0.4846	0.1142
30	<i>Flacourtia indica</i>	0.0159	0.1851	0.0235	0.1240	0.2650	0.0613
31	<i>Congea tomentosa</i>	0.0142	0.1650	0.0209	0.1105	0.2361	0.0548
32	<i>Flemingia lineata</i>	0.0068	0.0808	0.0100	0.0539	0.1149	0.0271
33	<i>Stereospermum neuranthum</i>	0.0038	0.0461	0.0056	0.0306	0.0651	0.0156
34	<i>Glochidion acuminatum</i>	0.0014	0.0177	0.0020	0.0116	0.0244	0.0062
35	<i>Melastoma sanguineum</i>	0.0006	0.0077	0.0009	0.0051	0.0106	0.0027
36	<i>Micromelum minutum</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
Total		62	500	66	346	700	142
15 year-old pine plantation							
1	<i>Pinus kesiya</i>	11.8499	55.1032	6.3237	39.6635	69.7876	9.7000
2	<i>Schima wallichii</i>	6.2544	69.6079	9.6404	47.4768	101.1497	22.6999
3	<i>Castanopsis acuminatissima</i>	5.2515	57.7924	8.2224	39.6760	84.2797	18.8191
4	<i>Engelhardtia spicata</i>	3.0932	34.3740	4.7712	23.4546	49.9795	11.1989
5	<i>Beilschmiedia gammieana</i>	3.0851	33.9628	4.8347	23.3222	49.5187	11.0681
6	<i>Dillenia aurea</i>	2.3785	26.1819	3.7280	17.9804	38.1747	8.5328
7	<i>Ternstroemia gymnanthera</i>	2.3125	25.8223	3.5432	17.5712	37.4885	8.4186
8	<i>Helicia terminalis</i>	1.6875	18.7686	2.6003	12.8010	27.2818	6.1159
9	<i>Phoebe paniculata</i>	1.4254	16.0940	2.1597	10.8987	23.2750	5.2681
10	<i>Trichilla connaroides</i>	1.3193	14.5724	2.0544	9.9816	21.2269	4.7465

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
15 year-old pine plantation							
11	<i>Stereospermum neuranthum</i>	1.2244	13.5380	1.9018	9.2642	19.7152	4.4077
12	<i>Elaeocarpus sphaericus</i>	0.8033	8.9079	1.2442	6.0880	12.9597	2.9031
13	<i>Helicia nilagirica</i>	0.6748	7.5691	1.0282	5.1386	10.9728	2.4702
14	<i>Dalbergia assamica</i>	0.6586	7.2827	1.0225	4.9829	10.6056	2.3707
15	<i>Castanopsis diversifolia</i>	0.5202	5.7751	0.8040	3.9436	8.3992	1.8818
16	<i>Glochidion sphaerogynum</i>	0.4706	5.3067	0.7155	3.5982	7.6762	1.7383
17	<i>Lindera metcalfiana</i>	0.4687	5.4133	0.6969	3.6356	7.7647	1.7903
18	<i>Memecylon celastrinum</i>	0.4351	5.0374	0.6467	3.3819	7.2179	1.6693
19	<i>Pyrenaria diospyricarpa</i>	0.3812	4.4816	0.5600	2.9936	6.3854	1.4964
20	<i>Eurya nitida</i>	0.3386	3.8599	0.5085	2.6038	5.5637	1.2681
21	<i>Wendlandia tinctoria</i>	0.3021	3.4286	0.4551	2.3162	4.9502	1.1239
22	<i>Magnolia henryi</i>	0.2171	2.4593	0.3278	1.6628	3.5531	0.8056
23	<i>Diospyros glandulosa</i>	0.1531	1.7744	0.2274	1.1908	2.5415	0.5882
24	<i>Eriolaena candollei</i>	0.1204	1.3551	0.1828	0.9185	1.9623	0.4426
25	<i>Symplocos henschelii</i>	0.1160	1.3168	0.1749	0.8897	1.9010	0.4318
26	<i>Glochidion acuminatum</i>	0.0871	1.0798	0.1259	0.7145	1.5055	0.3738
27	<i>Vitex canescens</i>	0.0869	0.9820	0.1313	0.6644	1.4200	0.3212
28	<i>Phoebe cathia</i>	0.0667	0.7646	0.0995	0.5144	1.1000	0.2516
29	<i>Saurauia roxburghii</i>	0.0612	0.7107	0.0905	0.4763	1.0173	0.2357
30	<i>Archidendron clypearia</i>	0.0460	0.5443	0.0674	0.3631	0.7734	0.1826
31	<i>Albizia odoratissima</i>	0.0296	0.3452	0.0436	0.2310	0.4934	0.1147
32	<i>Quercus semiserrata</i>	0.0269	0.3117	0.0398	0.2090	0.4465	0.1032
33	<i>Turpinia cochinchinensis</i>	0.0238	0.2748	0.0354	0.1845	0.3945	0.0907
34	<i>Melastoma sanguineum</i>	0.0153	0.1978	0.0220	0.1301	0.2715	0.0702
35	<i>Rhus javanica</i>	0.0105	0.1245	0.0153	0.0830	0.1766	0.0419
36	<i>Phyllanthus emblica</i>	0.0099	0.1179	0.0146	0.0786	0.1675	0.0395
37	<i>Blumea balsamifera</i>	0.0035	0.0450	0.0050	0.0296	0.0619	0.0159
38	<i>Micromelum minutum</i>	0.0024	0.0309	0.0035	0.0203	0.0427	0.0109
39	<i>Mussaenda sanderiana</i>	0.0018	0.0217	0.0026	0.0144	0.0304	0.0074
40	<i>Lepisanthes rubiginosa</i>	0.0016	0.0204	0.0023	0.0134	0.0281	0.0072
41	<i>Fissistigma minuticalyx</i>	0.0006	0.0077	0.0009	0.0051	0.0106	0.0027
42	<i>Ampelocissus martinii</i>	0.0004	0.0052	0.0006	0.0034	0.0071	0.0018
43	<i>Litsea monopetala</i>	0.0004	0.0047	0.0005	0.0031	0.0064	0.0017
44	<i>Eurya acuminata</i>	0.0003	0.0042	0.0005	0.0028	0.0058	0.0015
45	<i>Cinnamomum iners</i>	0.0003	0.0037	0.0004	0.0025	0.0051	0.0013
46	<i>Euodia roxburghiana</i>	0.0003	0.0035	0.0004	0.0023	0.0048	0.0013
47	<i>Milletia pachycarpa</i>	0.0003	0.0034	0.0004	0.0022	0.0046	0.0012
48	<i>Litsea cubeba</i>	0.0002	0.0023	0.0002	0.0015	0.0031	0.0008
49	<i>Arytera littoralis</i>	0.0002	0.0023	0.0002	0.0015	0.0031	0.0008
50	<i>Myrica esculenta</i>	0.0002	0.0022	0.0002	0.0015	0.0030	0.0008
51	<i>Styrax benzoides</i>	0.0002	0.0022	0.0002	0.0014	0.0029	0.0008
52	<i>Litsea glutinosa</i>	0.0002	0.0021	0.0002	0.0014	0.0029	0.0008
53	<i>Viburnum sambucinum</i>	0.0001	0.0012	0.0001	0.0008	0.0016	0.0004
54	<i>Buddleja asiatica</i>	0.0001	0.0008	0.0001	0.0005	0.0010	0.0003
Total		46	435	59	299	622	134
16 year-old pine plantation							
1	<i>Pinus kesiya</i>	62.2987	288.8837	33.4625	209.3544	366.9084	50.8161
2	<i>Schima wallichii</i>	2.4310	27.1516	3.7246	18.4750	39.4147	8.8536
3	<i>Canarium subulatum</i>	0.8984	9.9968	1.3828	6.8153	14.5298	3.2568
4	<i>Wendlandia tinctoria</i>	0.8673	9.7951	1.3131	6.6312	14.1652	3.2056
5	<i>Spatholobus parviflorus</i>	0.7764	8.6247	1.1971	5.8845	12.5421	2.8086
6	<i>Engelhardtia spicata</i>	0.7019	7.8233	1.0783	5.3291	11.3644	2.5499
7	<i>Phoebe paniculata</i>	0.6762	7.5945	1.0291	5.1532	11.0045	2.4798
8	<i>Vitex peduncularis</i>	0.5265	5.9082	0.8021	4.0106	8.5637	1.9287
9	<i>Glochidion sphaerogynum</i>	0.1663	1.9096	0.2478	1.2841	2.7455	0.6291
10	<i>Ampelocissus martinii</i>	0.1593	1.8119	0.2395	1.2228	2.6143	0.5942
11	<i>Musa acuminata</i>	0.1591	1.8477	0.2354	1.2383	2.6450	0.6126
12	<i>Eriolaena candollei</i>	0.1583	1.7749	0.2411	1.2049	2.5731	0.5791
13	<i>Phoebe cathia</i>	0.1188	1.3415	0.1800	0.9084	1.9399	0.4391
14	<i>Lindera metcalfiana</i>	0.0741	0.8670	0.1100	0.5813	1.2368	0.2897

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
16 year-old pine plantation							
16	<i>Glochidion hirsutum</i>	0.0564	0.6538	0.0835	0.4383	0.9366	0.2165
17	<i>Melastoma sanguineum</i>	0.0154	0.1971	0.0220	0.1297	0.2711	0.0697
18	<i>Saurauia roxburghii</i>	0.0091	0.1109	0.0131	0.0735	0.1556	0.0380
19	<i>Eurya nitida</i>	0.0089	0.1110	0.0129	0.0734	0.1548	0.0384
20	<i>Litsea cubeba</i>	0.0083	0.1056	0.0119	0.0696	0.1458	0.0371
21	<i>Litsea monopetala</i>	0.0072	0.0883	0.0104	0.0585	0.1238	0.0302
22	<i>Archidendron clypearia</i>	0.0041	0.0507	0.0059	0.0335	0.0707	0.0176
23	<i>Trichilla connaroides</i>	0.0037	0.0474	0.0053	0.0312	0.0653	0.0167
24	<i>Rauvolfia cambodiana</i>	0.0031	0.0407	0.0045	0.0267	0.0556	0.0145
25	<i>Blumea balsamifera</i>	0.0023	0.0311	0.0033	0.0204	0.0420	0.0113
26	<i>Ficus callosa</i>	0.0023	0.0276	0.0033	0.0183	0.0388	0.0094
27	<i>Pyrenaria diospyricarpa</i>	0.0021	0.0269	0.0030	0.0177	0.0368	0.0096
28	<i>Colona flagrocarpa</i>	0.0014	0.0188	0.0020	0.0123	0.0255	0.0068
29	<i>Viburnum sambucinum</i>	0.0005	0.0066	0.0007	0.0044	0.0090	0.0024
30	<i>Mussaenda sanderiana</i>	0.0004	0.0048	0.0005	0.0031	0.0065	0.0017
31	<i>Diospyros glandulosa</i>	0.0003	0.0039	0.0004	0.0026	0.0053	0.0014
32	<i>Artocarpus lacucha</i>	0.0003	0.0039	0.0004	0.0026	0.0053	0.0014
33	<i>Micromelum minutum</i>	0.0002	0.0029	0.0003	0.0019	0.0039	0.0010
Total		70	378	46	270	496	80
17 year-old pine plantation							
1	<i>Pinus kesiya</i>	12.1397	56.6431	6.4338	40.4747	71.5451	9.9791
2	<i>Schima wallichii</i>	5.9693	66.7399	9.1403	45.3986	96.8438	21.7765
3	<i>Myrica esculenta</i>	4.9468	55.0627	7.6173	37.5432	80.0153	17.9493
4	<i>Engelhardtia spicata</i>	4.1782	46.6517	6.4283	31.7884	67.7077	15.2429
5	<i>Castanopsis diversifolia</i>	3.9467	43.9499	6.0760	29.9626	63.8554	14.3307
6	<i>Quercus semiserrata</i>	3.8191	41.7418	6.0623	28.8140	60.9882	13.6138
7	<i>Helicia terminalis</i>	3.2652	36.9170	4.9377	24.9804	53.3670	12.0863
8	<i>Castanopsis acuminatissima</i>	2.4914	27.3471	3.9231	18.8163	39.9073	8.9130
9	<i>Phoebe cathia</i>	2.2329	24.5014	3.5181	16.8622	35.7585	7.9853
10	<i>Wendlandia tinctoria</i>	2.0812	23.5621	3.1450	15.9377	34.0439	7.7202
11	<i>Syzygium albiflorum</i>	1.7973	19.9715	2.7712	13.6256	29.0404	6.5047
12	<i>Elaeocarpus sphaericus</i>	1.5440	17.1297	2.3880	11.7009	24.9185	5.5807
13	<i>Phyllanthus emblica</i>	1.3490	15.6506	1.9976	10.4927	22.4139	5.1855
14	<i>Glochidion sphaerogynum</i>	0.7781	8.9747	1.1575	6.0290	12.8804	2.9653
15	<i>Beilschmiedia gammieana</i>	0.6961	7.8163	1.0604	5.3054	11.3259	2.5531
16	<i>Diospyros glandulosa</i>	0.6418	7.3627	0.9594	4.9564	10.5872	2.4271
17	<i>Artocarpus lacucha</i>	0.6314	6.9851	0.9797	4.7780	10.1707	2.2740
18	<i>Albizia chinensis</i>	0.4929	5.4636	0.7623	3.7324	7.9505	1.7788
19	<i>Heterophragma sulfureum</i>	0.3639	4.1085	0.5511	2.7817	5.9421	1.3444
20	<i>Trichilla connaroides</i>	0.2637	3.0038	0.3965	2.0273	4.3303	0.9871
21	<i>Lithocarpus sp.</i>	0.2505	2.8423	0.3770	1.9197	4.1042	0.9313
22	<i>Eurya nitida</i>	0.2273	2.6086	0.3393	1.7551	3.7513	0.8594
23	<i>Albizia odoratissima</i>	0.2187	2.4547	0.3337	1.6670	3.5573	0.8019
24	<i>Eriolaena candollei</i>	0.1899	2.1573	0.2857	1.4567	3.1136	0.7074
25	<i>Dillenia aurea</i>	0.1850	2.0760	0.2820	1.4095	3.0085	0.6781
26	<i>Phoebe paniculata</i>	0.1637	1.8599	0.2464	1.2560	2.6841	0.6100
27	<i>Archidendron clypearia</i>	0.1499	1.7153	0.2242	1.1552	2.4688	0.5646
28	<i>Garuga pinnata</i>	0.1475	1.6664	0.2232	1.1279	2.4100	0.5452
29	<i>Ternstroemia gymnanthera</i>	0.1394	1.5776	0.2105	1.0669	2.2800	0.5165
30	<i>Erythrina subumbrans</i>	0.1195	1.3446	0.1813	0.9113	1.9471	0.4392
31	<i>Litsea glutinosa</i>	0.1035	1.2017	0.1532	0.8055	1.7204	0.3984
32	<i>Helicia nilagirica</i>	0.1026	1.1571	0.1554	0.7836	1.6745	0.3782
33	<i>Glochidion acuminatum</i>	0.0849	1.0660	0.1225	0.7043	1.4785	0.3723
34	<i>Symplocos sp.</i>	0.0702	0.8078	0.1044	0.5428	1.1604	0.2665
35	<i>Memecylon celastrinum</i>	0.0630	0.7446	0.0923	0.4968	1.0586	0.2495
36	<i>Pyrenaria diospyricarpa</i>	0.0628	0.7550	0.0914	0.5019	1.0662	0.2557
37	<i>Kydia calycina</i>	0.0613	0.6956	0.0921	0.4696	1.0041	0.2279
38	<i>Glochidion hirsutum</i>	0.0547	0.6394	0.0804	0.4275	0.9129	0.2127
39	<i>Melastoma sanguineum</i>	0.0537	0.6845	0.0770	0.4508	0.9442	0.2410
40	<i>Arytera littoralis</i>	0.0436	0.5243	0.0637	0.3489	0.7400	0.1779

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
17 year-old pine plantation							
41	<i>Rhus succedanea</i>	0.0432	0.4993	0.0642	0.3351	0.7164	0.1649
42	<i>Cinnamomum iners</i>	0.0386	0.4487	0.0571	0.3007	0.6420	0.1489
43	<i>Docynia indica</i>	0.0333	0.3897	0.0490	0.2606	0.5565	0.1296
44	<i>Ampelocissus martinii</i>	0.0333	0.3848	0.0494	0.2583	0.5520	0.1272
45	<i>Sapindus rarak</i>	0.0179	0.2100	0.0263	0.1403	0.2996	0.0700
46	<i>Blumea balsamifera</i>	0.0176	0.2245	0.0252	0.1478	0.3093	0.0793
47	<i>Carallia brachiata</i>	0.0154	0.1793	0.0228	0.1201	0.2566	0.0594
48	<i>Xanthophyllum virens</i>	0.0119	0.1394	0.0176	0.0932	0.1991	0.0463
49	<i>Lindera metcalifiana</i>	0.0093	0.1127	0.0135	0.0748	0.1585	0.0385
50	<i>Litsea sp.</i>	0.0057	0.0708	0.0082	0.0468	0.0987	0.0244
51	<i>Alstonia scholaris</i>	0.0055	0.0685	0.0080	0.0453	0.0956	0.0236
52	<i>Symplocos henschelii</i>	0.0051	0.0616	0.0074	0.0409	0.0867	0.0210
53	<i>Ilex umbellulata</i>	0.0038	0.0453	0.0055	0.0301	0.0640	0.0153
54	<i>Catunaregam tomentosa</i>	0.0027	0.0334	0.0039	0.0221	0.0467	0.0115
55	<i>Anneslea fragrans</i>	0.0018	0.0221	0.0026	0.0146	0.0310	0.0076
56	<i>Saurauia roxburghii</i>	0.0012	0.0151	0.0018	0.0100	0.0211	0.0052
57	<i>Spondias bipinnata</i>	0.0008	0.0100	0.0011	0.0066	0.0138	0.0035
58	<i>Rhus javanica</i>	0.0008	0.0099	0.0011	0.0065	0.0137	0.0035
59	<i>Viburnum sambucinum</i>	0.0006	0.0075	0.0008	0.0049	0.0104	0.0026
60	<i>Euodia roxburghiana</i>	0.0005	0.0069	0.0007	0.0045	0.0094	0.0025
61	<i>Quercus brandisiana</i>	0.0002	0.0021	0.0002	0.0014	0.0029	0.0008
Total		56	551	74	377	789	172
18 year-old pine plantation							
1	<i>Pinus kesiya</i>	46.3788	215.2796	24.8347	155.5314	273.0035	37.8807
2	<i>Castanopsis purpurea</i>	6.1733	69.1858	9.4290	47.0115	100.3108	22.5927
3	<i>Schima wallichii</i>	3.0049	33.4964	4.6230	22.8284	48.6487	10.9282
4	<i>Eriolaena candollei</i>	2.8946	32.2154	4.4598	21.9698	46.8151	10.5036
5	<i>Castanopsis acuminatissima</i>	2.7223	30.3640	4.1788	20.6769	44.0964	9.8994
6	<i>Quercus vestita</i>	2.6388	29.7492	4.0019	20.1550	43.0483	9.7294
7	<i>Castanopsis diversifolia</i>	2.5159	28.2024	3.8421	19.1619	40.8866	9.2105
8	<i>Wendlandia tinctoria</i>	2.3634	27.1748	3.5221	18.2713	39.0481	8.9624
9	<i>Glochidion sphaerogynum</i>	2.2433	25.3273	3.3985	17.1506	36.6299	8.2892
10	<i>Dalbergia assamica</i>	1.7622	20.0800	2.6539	13.5585	28.9398	6.6055
11	<i>Acacia megaladena</i>	1.5466	16.9936	2.4277	11.6788	24.7935	5.5340
12	<i>Ternstroemia gymnanthera</i>	0.8621	9.7517	1.3021	6.5957	14.0955	3.1920
13	<i>Archidendron clypearia</i>	0.8052	9.0347	1.2264	6.1327	13.0954	2.9491
14	<i>Albizia odoratissima</i>	0.7269	8.0506	1.1269	5.5045	11.7177	2.6221
15	<i>Phoebe lanceolata</i>	0.6972	7.8127	1.0639	5.3072	11.3290	2.5497
16	<i>Ficus ribes</i>	0.6689	7.4400	1.0298	5.0729	10.8152	2.4234
17	<i>Castanopsis tribuloides</i>	0.6559	7.2975	1.0094	4.9749	10.6071	2.3770
18	<i>Helicia terminalis</i>	0.5444	6.1154	0.8284	4.1492	8.8607	1.9970
19	<i>Lithocarpus sootepensis</i>	0.5340	6.0247	0.8083	4.0789	8.7163	1.9699
20	<i>Erythrina subumbrans</i>	0.4070	4.5471	0.6232	3.0933	6.6005	1.4825
21	<i>Syzygium cumini</i>	0.4065	4.5633	0.6186	3.0966	6.6133	1.4896
22	<i>Eurya nitida</i>	0.3864	4.3935	0.5807	2.9652	6.3390	1.4410
23	<i>Syzygium albiflorum</i>	0.3739	4.2806	0.5594	2.8830	6.1602	1.4093
24	<i>Phyllanthus emblica</i>	0.3606	4.1689	0.5350	2.7977	5.9783	1.3786
25	<i>Diospyros glandulosa</i>	0.3468	3.9337	0.5225	2.6577	5.6805	1.2890
26	<i>Stereospermum neuranthum</i>	0.2831	3.1887	0.4295	2.1609	4.6160	1.0422
27	<i>Protium serratum</i>	0.2679	3.0103	0.4074	2.0419	4.3616	0.9828
28	<i>Aporosa villosa</i>	0.2656	3.0652	0.3947	2.0583	4.3984	1.0128
29	<i>Elaeocarpus sphaericus</i>	0.2290	2.5581	0.3507	1.7402	3.7137	0.8338
30	<i>Engelhardtia spicata</i>	0.2281	2.5478	0.3492	1.7332	3.6987	0.8305
31	<i>Gluta obovata</i>	0.2028	2.3161	0.3037	1.5607	3.3364	0.7612
32	<i>Magnolia henryi</i>	0.1662	1.8768	0.2515	1.2704	2.7147	0.6139
33	<i>Dillenia aurea</i>	0.1652	1.8672	0.2500	1.2638	2.6995	0.6113
34	<i>Pterospermum acerifolium</i>	0.1602	1.7963	0.2441	1.2195	2.6043	0.5861
35	<i>Symplocos sp.</i>	0.1527	1.7274	0.2307	1.1683	2.4971	0.5653

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
18 year-old pine plantation							
36	<i>Anneslea fragrans</i>	0.1114	1.2549	0.1689	0.8502	1.8166	0.4100
37	<i>Dolichandrone serrulata</i>	0.0929	1.0635	0.1387	0.7158	1.5305	0.3499
38	<i>Docynia indica</i>	0.0918	1.0364	0.1388	0.7014	1.4991	0.3389
39	<i>Callicarpa arborea</i>	0.0580	0.6634	0.0866	0.4467	0.9548	0.2183
40	<i>Gmelina arborea</i>	0.0525	0.5975	0.0788	0.4030	0.8618	0.1960
41	<i>Colona flagrocarpa</i>	0.0353	0.4047	0.0528	0.2724	0.5824	0.1331
42	<i>Helicia nilagirica</i>	0.0318	0.3647	0.0474	0.2453	0.5245	0.1201
43	<i>Vaccinium sprengelii</i>	0.0246	0.2864	0.0363	0.1917	0.4095	0.0951
44	<i>Symplocos racemosa</i>	0.0222	0.2599	0.0327	0.1737	0.3710	0.0865
45	<i>Schoepfia fragrans</i>	0.0214	0.2470	0.0317	0.1657	0.3543	0.0816
46	<i>Styrax benzoides</i>	0.0078	0.0914	0.0114	0.0610	0.1301	0.0306
Total		85	646	83	448	897	179
19 year-old pine plantation							
1	<i>Pinus kesiya</i>	58.4225	272.0298	31.0763	195.1567	344.0293	47.9032
2	<i>Castanopsis diversifolia</i>	5.4883	61.4629	8.3870	41.7741	89.1386	20.0626
3	<i>Eriolaena candollei</i>	3.7048	41.4080	5.6772	28.1752	60.0905	13.5127
4	<i>Castanopsis purpurea</i>	3.6790	40.6365	5.7429	27.8574	59.1838	13.2541
5	<i>Albizia chinensis</i>	2.4342	27.1655	3.7328	18.4916	39.4453	8.8562
6	<i>Wendlandia tinctoria</i>	2.1381	24.3005	3.2217	16.4154	35.0602	7.9778
7	<i>Ternstroemia gymnanthera</i>	1.3574	15.0382	2.1039	10.2813	21.8851	4.8991
8	<i>Gluta obovata</i>	0.9841	10.8481	1.5359	7.4380	15.8127	3.5314
9	<i>Ficus ribes</i>	0.9673	10.8685	1.4715	7.3733	15.7464	3.5493
10	<i>Schima wallichii</i>	0.9169	10.2053	1.4102	6.9556	14.8315	3.3246
11	<i>Markhamia stipulata</i>	0.7157	7.9802	1.0984	5.4342	11.5910	2.6008
12	<i>Syzygium cumini</i>	0.6623	7.3897	1.0156	5.0303	10.7309	2.4087
13	<i>Phyllanthus emblica</i>	0.4844	5.5530	0.7234	3.7372	7.9882	1.8285
14	<i>Dolichandrone serrulata</i>	0.4320	4.8683	0.6551	3.2983	7.0459	1.5915
15	<i>Castanopsis acuminatissima</i>	0.4067	4.5161	0.6274	3.0819	6.5682	1.4706
16	<i>Protium serratum</i>	0.3965	4.4635	0.6019	3.0253	6.4626	1.4584
17	<i>Acacia megaladena</i>	0.3464	3.8950	0.5264	2.6413	5.6417	1.2722
18	<i>Phoebe lanceolata</i>	0.3142	3.5087	0.4816	2.3878	5.0936	1.1442
19	<i>Glochidion sphaerogynum</i>	0.3091	3.5353	0.4621	2.3807	5.0902	1.1625
20	<i>Litsea monopetala</i>	0.2466	2.7523	0.3779	1.8731	3.9966	0.8970
21	<i>Phoebe paniculata</i>	0.1971	2.2201	0.2988	1.5042	3.2135	0.7256
22	<i>Elaeocarpus sphaericus</i>	0.1667	1.8686	0.2541	1.2689	2.7095	0.6096
23	<i>Adinandra integerrima</i>	0.1392	1.6007	0.2074	1.0761	2.3004	0.5277
24	<i>Albizia odoratissima</i>	0.0979	1.1049	0.1482	0.7481	1.5987	0.3612
25	<i>Horsfieldia tomentosa</i>	0.0649	0.7524	0.0961	0.5044	1.0780	0.2491
26	<i>Dalbergia velutina</i>	0.0591	0.6719	0.0889	0.4536	0.9698	0.2202
27	<i>Xanthophyllum virens</i>	0.0582	0.6667	0.0870	0.4488	0.9595	0.2194
28	<i>Stereospermum neuranthum</i>	0.0475	0.5414	0.0712	0.3650	0.7805	0.1777
29	<i>Holarrhena pubescens</i>	0.0414	0.4763	0.0616	0.3202	0.6841	0.1572
30	<i>Dillenia indica</i>	0.0406	0.4660	0.0606	0.3135	0.6701	0.1536
31	<i>Pterospermum acerifolium</i>	0.0376	0.4306	0.0562	0.2899	0.6200	0.1416
32	<i>Aporosa wallichii</i>	0.0315	0.3638	0.0469	0.2443	0.5221	0.1201
33	<i>Helicia nilagirica</i>	0.0268	0.3082	0.0398	0.2071	0.4428	0.1016
34	<i>Engelhardtia spicata</i>	0.0148	0.1742	0.0216	0.1162	0.2478	0.0583
35	<i>Vaccinium sprengelii</i>	0.0090	0.1060	0.0132	0.0708	0.1511	0.0354
36	<i>Syzygium albiflorum</i>	0.0063	0.0745	0.0092	0.0496	0.1058	0.0250
37	<i>Cinnamomum iners</i>	0.0015	0.0183	0.0021	0.0121	0.0255	0.0063
38	<i>Arytera littoralis</i>	0.0012	0.0155	0.0017	0.0102	0.0213	0.0055
Total		85	574	72	401	783	147

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
20 year-old pine plantation							
1	<i>Pinus kesiya</i>	65.5357	304.9814	34.8962	219.0415	385.8492	53.6990
2	<i>Bauhinia variegata</i>	2.3385	26.1743	3.5763	17.7952	37.9664	8.5432
3	<i>Eriolaena candollei</i>	2.0108	22.4564	3.0818	15.2820	32.5994	7.3233
4	<i>Syzygium albiflorum</i>	0.4879	5.4545	0.7467	3.7097	7.9155	1.7790
5	<i>Castanopsis diversifolia</i>	0.3359	3.7861	0.5093	2.5650	5.4789	1.2381
6	<i>Glochidion sphaerogynum</i>	0.3207	3.5700	0.4933	2.4331	5.1885	1.1629
7	<i>Phyllanthus emblica</i>	0.2216	2.5087	0.3342	1.6958	3.6252	0.8212
8	<i>Dolichandrone serrulata</i>	0.0203	0.2351	0.0301	0.1577	0.3369	0.0778
9	<i>Syzygium cumini</i>	0.0102	0.1217	0.0148	0.0809	0.1722	0.0411
10	<i>Arytera littoralis</i>	0.0091	0.1158	0.0131	0.0763	0.1601	0.0406
11	<i>Aporosa villosa</i>	0.0063	0.0745	0.0092	0.0496	0.1058	0.0250
12	<i>Wendlandia tinctoria</i>	0.0055	0.0654	0.0080	0.0436	0.0929	0.0220
13	<i>Dillenia indica</i>	0.0048	0.0576	0.0070	0.0383	0.0816	0.0194
14	<i>Litsea monopetala</i>	0.0038	0.0464	0.0054	0.0307	0.0650	0.0159
15	<i>Phoebe paniculata</i>	0.0011	0.0141	0.0016	0.0093	0.0196	0.0049
16	<i>Symplocos sp.</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
17	<i>Rhus javanica</i>	0.0003	0.0039	0.0004	0.0026	0.0053	0.0014
Total		71	370	44	263	480	75
21 year-old pine plantation							
1	<i>Pinus kesiya</i>	67.8163	315.1394	36.2406	227.1754	399.3467	55.4660
2	<i>Schima wallichii</i>	12.7192	141.3611	19.6492	96.5033	205.5057	46.0987
3	<i>Castanopsis acuminatissima</i>	5.5166	61.2791	8.5123	41.8200	89.1124	19.9612
4	<i>Anneslea fragrans</i>	5.3857	59.7739	8.3307	40.8299	86.9378	19.4822
5	<i>Syzygium albiflorum</i>	3.9870	44.0535	6.2405	30.2258	64.1370	14.3942
6	<i>Castanopsis diversifolia</i>	3.5212	38.7797	5.5108	26.6169	56.5371	12.6335
7	<i>Lithocarpus elegans</i>	2.8815	31.9879	4.4555	21.8469	46.5216	10.4260
8	<i>Wendlandia tinctoria</i>	2.2631	25.7903	3.4016	17.4031	37.1743	8.4761
9	<i>Elaeocarpus sphaericus</i>	2.0910	23.4293	3.1965	15.9249	33.9702	7.6530
10	<i>Myrica esculenta</i>	1.1923	13.2273	1.8429	9.0334	19.2429	4.3078
11	<i>Buchanania lanzan</i>	1.1532	12.8831	1.7685	8.7687	18.6978	4.2043
12	<i>Syzygium cumini</i>	0.8333	9.3509	1.2707	6.3497	13.5523	3.0542
13	<i>Lithocarpus garrettianus</i>	0.8084	9.1586	1.2192	6.1906	13.2310	2.9997
14	<i>Glochidion sphaerogynum</i>	0.7429	8.4543	1.1163	5.7052	12.1934	2.7749
15	<i>Aporosa villosa</i>	0.5147	5.9129	0.7687	3.9786	8.4975	1.9509
16	<i>Magnolia henryi</i>	0.4896	5.4590	0.7514	3.7174	7.9291	1.7791
17	<i>Xanthophyllum virens</i>	0.3602	4.0041	0.5547	2.7307	5.8214	1.3040
18	<i>Engelhardtia spicata</i>	0.3080	3.5298	0.4600	2.3758	5.0782	1.1621
19	<i>Phoebe paniculata</i>	0.2668	3.0452	0.3998	2.0524	4.3880	1.0004
20	<i>Albizia chinensis</i>	0.2472	2.7689	0.3775	1.8815	4.0156	0.9036
21	<i>Symplocos sp.</i>	0.2026	2.3001	0.3048	1.5532	3.3203	0.7539
22	<i>Engelhardtia serrata</i>	0.1717	1.9480	0.2587	1.3160	2.8131	0.6383
23	<i>Dalbergia assamica</i>	0.1711	1.9235	0.2605	1.3050	2.7863	0.6284
24	<i>Tristania rufescens</i>	0.1267	1.4786	0.1869	0.9895	2.1133	0.4913
25	<i>Albizia odoratissima</i>	0.1189	1.3410	0.1803	0.9084	1.9405	0.4385
26	<i>Phyllanthus emblica</i>	0.0763	0.9049	0.1114	0.6029	1.2848	0.3037
27	<i>Diospyros glandulosa</i>	0.0739	0.8629	0.1089	0.5773	1.2330	0.2867
28	<i>Holarrhena pubescens</i>	0.0731	0.8627	0.1071	0.5756	1.2276	0.2886
29	<i>Styrax benzoides</i>	0.0534	0.6288	0.0784	0.4198	0.8955	0.2100
30	<i>Gmelina arborea</i>	0.0480	0.5482	0.0720	0.3695	0.7899	0.1801
31	<i>Vitex peduncularis</i>	0.0451	0.5308	0.0661	0.3543	0.7560	0.1773
32	<i>Ampelocissus martinii</i>	0.0357	0.4177	0.0525	0.2793	0.5961	0.1391
33	<i>Canarium subulatum</i>	0.0285	0.3342	0.0419	0.2233	0.4767	0.1113
34	<i>Olea salicifolia</i>	0.0274	0.3221	0.0403	0.2152	0.4592	0.1075
35	<i>Bombax anceps</i>	0.0274	0.3191	0.0405	0.2137	0.4565	0.1058
36	<i>Eurya nitida</i>	0.0274	0.3155	0.0408	0.2121	0.4534	0.1040
37	<i>Stereospermum neuranthum</i>	0.0251	0.2936	0.0369	0.1964	0.4191	0.0978
38	<i>Canarium sp.</i>	0.0072	0.0856	0.0106	0.0571	0.1217	0.0286
39	<i>Dalbergia foliacea</i>	0.0050	0.0591	0.0072	0.0393	0.0838	0.0199
40	<i>Rapanea porteriana</i>	0.0022	0.0281	0.0031	0.0185	0.0386	0.0100
41	<i>Beilschmiedia gammieana</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
Total		114	835	108	582	1,154	225

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
	22 year-old pine plantation						
1	<i>Pinus kesiya</i>	44.6018	208.0554	23.6642	148.8253	262.9493	36.6506
2	<i>Quercus brandisiana</i>	8.0931	90.6178	12.3827	61.6156	131.4175	29.5942
3	<i>Quercus vestita</i>	3.9651	45.1850	5.9527	30.4790	65.1380	14.8407
4	<i>Lithocarpus polystachyus</i>	3.4491	38.8641	5.2353	26.3392	56.2463	12.7104
5	<i>Dalbergia cultrata</i>	2.5679	28.9263	3.8985	19.6059	41.8688	9.4585
6	<i>Schima wallichii</i>	2.3913	26.8093	3.6460	18.2057	38.8697	8.7493
7	<i>Wendlandia tinctoria</i>	2.0940	24.0743	3.1201	16.1862	34.5945	7.9388
8	<i>Gluta obovata</i>	1.8693	20.8436	2.8767	14.2060	30.2678	6.8027
9	<i>Lithocarpus elegans</i>	1.8082	20.6020	2.7145	13.8970	29.7019	6.7655
10	<i>Tristania rufescens</i>	1.4358	16.4849	2.1504	11.1029	23.6914	5.4437
11	<i>Lithocarpus sootepensis</i>	1.3981	15.9690	2.0953	10.7633	23.0007	5.2512
12	<i>Castanopsis purpurea</i>	1.3482	15.4514	2.0136	10.3996	22.2293	5.0872
13	<i>Ficus ribes</i>	1.0875	12.3137	1.6409	8.3250	17.7925	4.0321
14	<i>Anneslea fragrans</i>	1.0352	11.7670	1.5580	7.9457	16.9779	3.8612
15	<i>Erythrina subumbrans</i>	0.7997	8.8297	1.2448	6.0475	12.8645	2.8742
16	<i>Litsea sp.</i>	0.7898	8.8212	1.2101	6.0023	12.8055	2.8764
17	<i>Aporosa villosa</i>	0.7073	8.2348	1.0447	5.5148	11.7775	2.7337
18	<i>Glochidion sphaerogynum</i>	0.6344	7.3168	0.9434	4.9148	10.5018	2.4169
19	<i>Phyllanthus emblica</i>	0.6268	7.3421	0.9222	4.9083	10.4767	2.4455
20	<i>Craibiodendron stellatum</i>	0.4514	5.2091	0.6712	3.4988	7.4746	1.7216
21	<i>Ternstroemia gymnanthera</i>	0.4513	5.1552	0.6764	3.4746	7.4254	1.6951
22	<i>Vaccinium sprengelii</i>	0.3554	4.1590	0.5232	2.7811	5.9369	1.3845
23	<i>Shorea roxburghii</i>	0.3330	3.8293	0.4964	2.5750	5.5016	1.2635
24	<i>Syzygium cumini</i>	0.2960	3.4145	0.4403	2.2938	4.9000	1.1284
25	<i>Semecarpus albescens</i>	0.2709	3.0475	0.4122	2.0674	4.4131	0.9964
26	<i>Ilex umbellulata</i>	0.2440	2.7441	0.3705	1.8604	3.9744	0.8962
27	<i>Dalbergia assamica</i>	0.2342	2.6573	0.3527	1.7950	3.8370	0.8707
28	<i>Eriolaena candollei</i>	0.2182	2.4378	0.3338	1.6579	3.5385	0.7947
29	<i>Glochidion hirsutum</i>	0.2042	2.4271	0.2982	1.6167	3.4439	0.8155
30	<i>Engelhardtia serrata</i>	0.1958	2.2696	0.2899	1.5217	3.2514	0.7516
31	<i>Castanopsis diversifolia</i>	0.1949	2.2058	0.2942	1.4916	3.1876	0.7222
32	<i>Canarium subulatum</i>	0.1506	1.6899	0.2293	1.1469	2.4495	0.5515
33	<i>Diospyros glandulosa</i>	0.1483	1.6644	0.2257	1.1295	2.4124	0.5432
34	<i>Pterospermum acerifolium</i>	0.1429	1.6140	0.2163	1.0926	2.3340	0.5282
35	<i>Gardenia sootepensis</i>	0.1348	1.5529	0.2004	1.0431	2.2300	0.5124
36	<i>Spondias bipinnata</i>	0.1058	1.2024	0.1591	0.8118	1.7354	0.3942
37	<i>Stereospermum neuranthum</i>	0.1054	1.1962	0.1586	0.8079	1.7268	0.3921
38	<i>Syzygium albiflorum</i>	0.0607	0.6934	0.0908	0.4672	0.9986	0.2280
39	<i>Viburnum sambucinum</i>	0.0605	0.6948	0.0902	0.4672	0.9991	0.2288
40	<i>Celastrus paniculata</i>	0.0554	0.6450	0.0817	0.4318	0.9225	0.2140
41	<i>Lithocarpus lindleyanus</i>	0.0539	0.6230	0.0801	0.4182	0.8935	0.2060
42	<i>Pavetta tomentosa</i>	0.0518	0.6132	0.0758	0.4088	0.8716	0.2055
43	<i>Eurya nitida</i>	0.0488	0.5556	0.0731	0.3747	0.8012	0.1824
44	<i>Vitex peduncularis</i>	0.0473	0.5388	0.0708	0.3632	0.7767	0.1769
45	<i>Dillenia aurea</i>	0.0406	0.4650	0.0607	0.3130	0.6692	0.1530
46	<i>Quercus semiserrata</i>	0.0402	0.4683	0.0592	0.3134	0.6695	0.1555
47	<i>Antidesma acidum</i>	0.0345	0.4154	0.0501	0.2759	0.5864	0.1408
48	<i>Symplocos racemosa</i>	0.0253	0.2919	0.0377	0.1961	0.4192	0.0963
49	<i>Dolichandrone serrulata</i>	0.0247	0.2844	0.0367	0.1910	0.4084	0.0938
50	<i>Beilschmiedia gammieana</i>	0.0241	0.2778	0.0358	0.1866	0.3989	0.0917
51	<i>Ampelocissus martinii</i>	0.0232	0.2673	0.0344	0.1794	0.3836	0.0882
52	<i>Engelhardtia spicata</i>	0.0168	0.1967	0.0246	0.1314	0.2805	0.0656
53	<i>Helicia nilagirica</i>	0.0151	0.1754	0.0223	0.1175	0.2510	0.0582
54	<i>Gluta usitata</i>	0.0130	0.1532	0.0190	0.1022	0.2179	0.0513
55	<i>Catunaregam tomentosa</i>	0.0125	0.1454	0.0183	0.0973	0.2078	0.0483
56	<i>Terminalia chebula</i>	0.0123	0.1471	0.0179	0.0978	0.2082	0.0496
57	<i>Phoebe lanceolata</i>	0.0088	0.1037	0.0129	0.0692	0.1478	0.0346
58	<i>Vangueria pubescens</i>	0.0070	0.0838	0.0102	0.0558	0.1187	0.0282
59	<i>Antidesma sp.</i>	0.0050	0.0609	0.0072	0.0403	0.0854	0.0208
60	<i>Xantolis cambodiana</i>	0.0025	0.0304	0.0036	0.0202	0.0428	0.0104
61	<i>Smilax ovalifolia</i>	0.0011	0.0138	0.0016	0.0091	0.0192	0.0048
	Total	86	673	86	463	934	189

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
23 year-old pine plantation							
1	<i>Pinus kesiya</i>	35.1282	163.7065	18.6991	117.4806	207.2470	28.8290
2	<i>Quercus vestita</i>	11.7659	131.0821	18.1188	89.3681	190.4107	42.7654
3	<i>Lithocarpus polystachyus</i>	7.6315	85.2013	11.7157	58.0150	123.6830	27.8030
4	<i>Schima wallichii</i>	2.8055	31.2642	4.3111	21.2995	45.4169	10.1907
5	<i>Lithocarpus sootepensis</i>	1.7132	19.1990	2.6213	13.0532	27.8326	6.2750
6	<i>Lithocarpus elegans</i>	1.2656	14.2951	1.9169	9.6789	20.6713	4.6797
7	<i>Quercus kingiana</i>	1.1941	13.6154	1.7917	9.1820	19.6236	4.4730
8	<i>Tristania rufescens</i>	0.9842	11.3985	1.4628	7.6521	16.3306	3.7780
9	<i>Phyllanthus emblica</i>	0.8326	9.5792	1.2420	6.4423	13.7592	3.1626
10	<i>Castanopsis purpurea</i>	0.8232	9.2417	1.2545	6.2738	13.3919	3.0188
11	<i>Protium serratum</i>	0.7776	8.6596	1.1956	5.9011	12.5830	2.8217
12	<i>Stereospermum neuranthum</i>	0.6791	7.5079	1.0548	5.1378	10.9345	2.4440
13	<i>Dalbergia assamica</i>	0.6535	7.4453	0.9808	5.0219	10.7340	2.4447
14	<i>Albizia odoratissima</i>	0.6541	7.2686	1.0101	4.9615	10.5673	2.3696
15	<i>Craibiodendron stellatum</i>	0.5493	6.3327	0.8198	4.2587	9.0877	2.0948
16	<i>Vaccinium sprengelii</i>	0.4925	5.7491	0.7274	3.8491	8.2133	1.9127
17	<i>Lithocarpus fenestratus</i>	0.4493	5.0965	0.6773	3.4440	7.3588	1.6708
18	<i>Styrax benzoides</i>	0.2749	3.1332	0.4123	2.1128	4.5168	1.0287
19	<i>Aporosa villosa</i>	0.2735	3.1626	0.4063	2.1231	4.5347	1.0464
20	<i>Dillenia aurea</i>	0.2721	3.0335	0.4175	2.0656	4.4064	0.9884
21	<i>Anneslea fragrans</i>	0.1994	2.2843	0.2980	1.5378	3.2865	0.7521
22	<i>Clausena wallichii</i>	0.1892	2.1467	0.2847	1.4498	3.0996	0.7033
23	<i>Wendlandia tinctoria</i>	0.1751	2.0302	0.2593	1.3612	2.9080	0.6724
24	<i>Vangueria pubescens</i>	0.1500	1.7321	0.2227	1.1626	2.4854	0.5721
25	<i>Syzygium cumini</i>	0.1089	1.2432	0.1631	0.8378	1.7911	0.4085
26	<i>Castanopsis diversifolia</i>	0.0970	1.1032	0.1457	0.7445	1.5916	0.3619
27	<i>Celastrus paniculata</i>	0.0791	0.9084	0.1178	0.6108	1.3058	0.2994
28	<i>Gluta obovata</i>	0.0683	0.8020	0.1003	0.5358	1.1430	0.2676
29	<i>Glochidion sphaerogynum</i>	0.0623	0.7317	0.0915	0.4888	1.0428	0.2442
30	<i>Ziziphus oenoplia</i>	0.0373	0.4271	0.0558	0.2876	0.6150	0.1404
31	<i>Glochidion hirsutum</i>	0.0288	0.3404	0.0423	0.2272	0.4843	0.1139
32	<i>Symplocos racemosa</i>	0.0253	0.2942	0.0374	0.1971	0.4208	0.0977
33	<i>Dalbergia foliacea</i>	0.0241	0.2778	0.0358	0.1866	0.3989	0.0917
34	<i>Gluta usitata</i>	0.0228	0.2697	0.0335	0.1799	0.3836	0.0903
35	<i>Dalbergia cultrata</i>	0.0219	0.2560	0.0322	0.1712	0.3655	0.0851
36	<i>Flacourtia indica</i>	0.0198	0.2292	0.0294	0.1537	0.3286	0.0758
37	<i>Cratoxylum sumatranum</i>	0.0190	0.2196	0.0281	0.1473	0.3148	0.0726
38	<i>Colona flagrocarpa</i>	0.0171	0.2056	0.0248	0.1366	0.2905	0.0696
39	<i>Ternstroemia gymnanthera</i>	0.0170	0.1974	0.0252	0.1323	0.2828	0.0654
40	<i>Lithocarpus lindleyanus</i>	0.0147	0.1706	0.0216	0.1142	0.2441	0.0566
41	<i>Antidesma acidum</i>	0.0096	0.1154	0.0141	0.0768	0.1633	0.0389
42	<i>Dolichandrone serrulata</i>	0.0078	0.0939	0.0114	0.0624	0.1327	0.0317
43	<i>Symplocos henschelii</i>	0.0066	0.0779	0.0096	0.0519	0.1107	0.0261
44	<i>Semecarpus anacardium</i>	0.0056	0.0666	0.0082	0.0444	0.0945	0.0224
45	<i>Cratoxylum formosum</i>	0.0055	0.0654	0.0080	0.0436	0.0929	0.0220
46	<i>Terminalia chebula</i>	0.0041	0.0495	0.0060	0.0329	0.0698	0.0168
47	<i>Catunaregam tomentosa</i>	0.0026	0.0321	0.0038	0.0213	0.0451	0.0109
48	<i>Engelhardtia spicata</i>	0.0005	0.0064	0.0007	0.0042	0.0088	0.0022
49	<i>Turpinia pomifera</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
50	<i>Syzygium albiflorum</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
Total		71	562	73	388	785	159
24 year-old pine plantation							
1	<i>Pinus kesiya</i>	43.1882	201.5777	22.8754	143.9472	254.5547	35.5155
2	<i>Castanopsis diversifolia</i>	20.6930	226.5867	32.7662	156.2437	330.8709	73.9184
3	<i>Schima wallichii</i>	7.0038	77.3354	10.9290	53.0112	112.6508	25.2113
4	<i>Elaeocarpus sphaericus</i>	5.0106	55.2821	7.8242	37.9068	80.5498	18.0159
5	<i>Sarcosperma arboreum</i>	3.4119	37.5391	5.3451	25.7772	54.7471	12.2253
6	<i>Syzygium cumini</i>	3.3586	36.7313	5.3233	25.3405	53.6592	11.9761
7	<i>Helicia terminalis</i>	1.8614	21.0258	2.8165	14.2314	30.4057	6.8800
8	<i>Erythrina subumbrans</i>	1.5296	16.9399	2.3707	11.5816	24.6572	5.5163

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
24 year-old pine plantation							
9	<i>Glochidion sphaerogynum</i>	1.3262	14.7846	2.0366	10.0699	21.4748	4.8192
10	<i>Ternstroemia gymnanthera</i>	0.9021	10.0598	1.3844	6.8500	14.6112	3.2786
11	<i>Betula alnoides</i>	0.8772	9.6779	1.3670	6.6317	14.1034	3.1504
12	<i>Engelhardtia serrata</i>	0.7238	8.0397	1.1165	5.4862	11.6915	2.6185
13	<i>Styrax benzoides</i>	0.6045	6.8119	0.9176	4.6165	9.8586	2.2277
14	<i>Magnolia henryi</i>	0.5179	5.7385	0.8015	3.9213	8.3517	1.8682
15	<i>Engelhardtia spicata</i>	0.5095	5.6459	0.7883	3.8577	8.2166	1.8381
16	<i>Dalbergia assamica</i>	0.3023	3.3889	0.4608	2.3012	4.9135	1.1059
17	<i>Eurya nitida</i>	0.2381	2.7158	0.3591	1.8343	3.9120	0.8946
18	<i>Dalbergia foliacea</i>	0.1282	1.4632	0.1918	0.9859	2.1082	0.4806
19	<i>Phyllanthus emblica</i>	0.1058	1.2073	0.1588	0.8141	1.7397	0.3968
20	<i>Callicarpa arborea</i>	0.0937	1.0573	0.1417	0.7156	1.5295	0.3457
21	<i>Gmelina arborea</i>	0.0445	0.5082	0.0667	0.3425	0.7324	0.1669
22	<i>Dolichandrone serrulata</i>	0.0378	0.4324	0.0565	0.2912	0.6226	0.1422
23	<i>Gluta obovata</i>	0.0377	0.4366	0.0558	0.2928	0.6258	0.1444
24	<i>Helicia nilagirica</i>	0.0300	0.3448	0.0447	0.2319	0.4958	0.1136
25	<i>Stereospermum neuranthum</i>	0.0261	0.3010	0.0389	0.2022	0.4323	0.0992
26	<i>Anneslea fragrans</i>	0.0250	0.2881	0.0372	0.1935	0.4137	0.0950
27	<i>Wendlandia tinctoria</i>	0.0246	0.2902	0.0359	0.1935	0.4127	0.0972
28	<i>Syzygium albiflorum</i>	0.0228	0.2662	0.0336	0.1781	0.3804	0.0885
29	<i>Phoebe paniculata</i>	0.0222	0.2626	0.0325	0.1751	0.3730	0.0881
30	<i>Holarrhena pubescens</i>	0.0151	0.1761	0.0224	0.1179	0.2520	0.0584
31	<i>Diospyros glandulosa</i>	0.0094	0.1099	0.0137	0.0734	0.1566	0.0366
32	<i>Turpinia pomifera</i>	0.0078	0.0914	0.0114	0.0610	0.1301	0.0306
33	<i>Archidendron clypearia</i>	0.0060	0.0751	0.0086	0.0495	0.1041	0.0262
34	<i>Pavetta tomentosa</i>	0.0028	0.0351	0.0040	0.0232	0.0489	0.0122
35	<i>Symplocos sp.</i>	0.0011	0.0141	0.0016	0.0093	0.0196	0.0049
36	<i>Melastoma sanguineum</i>	0.0009	0.0112	0.0012	0.0074	0.0153	0.0041
37	<i>Rhus javanica</i>	0.0007	0.0088	0.0010	0.0058	0.0120	0.0031
38	<i>Morinda tomentosa</i>	0.0006	0.0078	0.0008	0.0051	0.0106	0.0028
39	<i>Pittosporum nepaulense</i>	0.0005	0.0068	0.0008	0.0045	0.0094	0.0024
40	<i>Albizia odoratissima</i>	0.0005	0.0068	0.0007	0.0045	0.0093	0.0025
41	<i>Olea salicifolia</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
42	<i>Canarium subulatum</i>	0.0004	0.0047	0.0005	0.0031	0.0065	0.0017
43	<i>Vernonia volkameriifolia</i>	0.0003	0.0039	0.0004	0.0026	0.0053	0.0014
44	<i>Acacia megaladena</i>	0.0003	0.0038	0.0004	0.0025	0.0051	0.0013
45	<i>Lindera metcalfiana</i>	0.0002	0.0023	0.0002	0.0015	0.0031	0.0008
46	<i>Litsea cubeba</i>	0.0001	0.0012	0.0001	0.0008	0.0017	0.0005
Total		93	747	100	519	1,050	214
25 year-old pine plantation							
1	<i>Pinus kesiya</i>	56.3340	262.6866	29.9056	188.0219	332.0486	46.2708
2	<i>Schima wallichii</i>	7.4483	82.8812	11.4820	56.5332	120.4464	27.0263
3	<i>Castanopsis diversifolia</i>	4.2606	47.3118	6.5871	32.3100	68.8000	15.4234
4	<i>Syzygium albiflorum</i>	3.9740	43.5197	6.2935	30.0103	63.5446	14.1997
5	<i>Castanopsis purpurea</i>	2.7057	29.6692	4.2678	20.4283	43.3097	9.6699
6	<i>Anneslea fragrans</i>	2.0646	23.0737	3.1661	15.7039	33.4830	7.5320
7	<i>Castanopsis acuminatissima</i>	1.8383	20.3900	2.8410	13.9248	29.6659	6.6388
8	<i>Wendlandia tinctoria</i>	1.1542	13.3386	1.7126	8.9518	19.1314	4.4093
9	<i>Helicia nilagirica</i>	0.7803	8.8482	1.1768	5.9803	12.7775	2.9005
10	<i>Ternstroemia gymnanthera</i>	0.7143	8.0532	1.0830	5.4556	11.6534	2.6335
11	<i>Glochidion sphaerogynum</i>	0.6957	7.8130	1.0592	5.3021	11.3210	2.5515
12	<i>Styrax benzoides</i>	0.5677	6.4713	0.8515	4.3639	9.3280	2.1253
13	<i>Betula alnoides</i>	0.4592	5.0932	0.7095	3.4781	7.4102	1.6583
14	<i>Gluta obovata</i>	0.4136	4.7454	0.6172	3.1928	6.8240	1.5634
15	<i>Ficus ribes</i>	0.3752	4.2346	0.5683	2.8674	6.1257	1.3852
16	<i>Engelhardtia serrata</i>	0.3557	3.9965	0.5410	2.7111	5.7903	1.3050
17	<i>Lithocarpus sootepensis</i>	0.3099	3.5024	0.4687	2.3702	5.0636	1.1465
18	<i>Diospyros glandulosa</i>	0.2800	3.1571	0.4241	2.1381	4.5685	1.0321
19	<i>Callicarpa arborea</i>	0.2575	2.8726	0.3949	1.9554	4.1719	0.9361
20	<i>Engelhardtia spicata</i>	0.1967	2.2446	0.2949	1.5133	3.2343	0.7376

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
25 year-old pine plantation							
21	<i>Tristania rufescens</i>	0.1910	2.1945	0.2845	1.4755	3.1542	0.7233
22	<i>Dalbergia foliacea</i>	0.1238	1.4231	0.1844	0.9567	2.0453	0.4691
23	<i>Dalbergia assamica</i>	0.1109	1.2606	0.1667	0.8508	1.8191	0.4133
24	<i>Dillenia aurea</i>	0.0917	1.0349	0.1386	0.7004	1.4969	0.3384
25	<i>Phyllanthus emblica</i>	0.0752	0.8739	0.1111	0.5854	1.2508	0.2897
26	<i>Magnolia henryi</i>	0.0706	0.8000	0.1064	0.5406	1.1557	0.2620
27	<i>Phoebe paniculata</i>	0.0652	0.7447	0.0975	0.5017	1.0725	0.2448
28	<i>Phoebe cathia</i>	0.0581	0.6600	0.0873	0.4454	0.9525	0.2163
29	<i>Eurya nitida</i>	0.0475	0.5414	0.0712	0.3650	0.7805	0.1777
30	<i>Gluta usitata</i>	0.0439	0.5083	0.0651	0.3410	0.7285	0.1682
31	<i>Symplocos sp.</i>	0.0250	0.2881	0.0372	0.1935	0.4137	0.0950
32	<i>Dolichandrone serrulata</i>	0.0102	0.1196	0.0150	0.0799	0.1707	0.0398
33	<i>Elaeocarpus sphaericus</i>	0.0081	0.0961	0.0119	0.0641	0.1365	0.0322
34	<i>Aporosa villosa</i>	0.0070	0.0828	0.0102	0.0552	0.1177	0.0277
35	<i>Olea salicifolia</i>	0.0018	0.0216	0.0025	0.0143	0.0302	0.0074
36	<i>Acacia megaladena</i>	0.0005	0.0066	0.0007	0.0044	0.0091	0.0024
37	<i>Archidendron clypearia</i>	0.0004	0.0047	0.0005	0.0031	0.0065	0.0017
38	<i>Albizia odoratissima</i>	0.0003	0.0039	0.0004	0.0026	0.0053	0.0014
39	<i>Pavetta tomentosa</i>	0.0002	0.0030	0.0003	0.0020	0.0041	0.0011
Total		86	595	76	414	814	155
26 year-old pine plantation							
1	<i>Pinus kesiya</i>	91.1046	421.2110	49.2456	307.3068	536.4017	74.0385
2	<i>Schima wallichii</i>	16.4920	182.5495	25.6251	124.9188	265.7216	59.5019
3	<i>Quercus semiserrata</i>	6.4651	70.4728	10.3279	48.7688	103.0378	23.0125
4	<i>Castanopsis diversifolia</i>	6.3890	70.2718	10.0355	48.2983	102.4799	22.9122
5	<i>Helicia nilagirica</i>	4.1482	45.5891	6.5112	31.3295	66.5091	14.8480
6	<i>Syzygium albiflorum</i>	2.4520	26.9483	3.8551	18.5294	39.3093	8.7852
7	<i>Ternstroemia gymnanthera</i>	2.2811	25.2430	3.5457	17.2766	36.7460	8.2279
8	<i>Stereospermum neuranthum</i>	2.1862	23.9686	3.4467	16.5009	34.9913	7.8089
9	<i>Syzygium cumini</i>	1.5547	17.0822	2.4407	11.7400	24.9230	5.5628
10	<i>Castanopsis purpurea</i>	1.3038	14.3424	2.0422	9.8482	20.9185	4.6698
11	<i>Dillenia aurea</i>	1.1356	12.5052	1.7757	8.5806	18.2337	4.0712
12	<i>Phoebe paniculata</i>	1.0888	12.0889	1.6810	8.2520	17.5826	3.9373
13	<i>Elaeocarpus sphaericus</i>	0.5594	6.2595	0.8546	4.2543	9.0815	2.0414
14	<i>Engelhardtia spicata</i>	0.5512	6.1876	0.8394	4.1996	8.9672	2.0203
15	<i>Toona ciliata</i>	0.4983	5.5231	0.7708	3.7733	8.0374	1.7981
16	<i>Helicia terminalis</i>	0.4042	4.5744	0.6106	3.0939	6.6109	1.4979
17	<i>Dalbergia assamica</i>	0.3783	4.2848	0.5714	2.8978	6.1901	1.4041
18	<i>Lithocarpus elegans</i>	0.3343	3.7970	0.5032	2.5642	5.4803	1.2451
19	<i>Castanopsis acuminatissima</i>	0.3051	3.4180	0.4658	2.3222	4.9571	1.1152
20	<i>Quercus vestita</i>	0.1573	1.7872	0.2371	1.2074	2.5789	0.5866
21	<i>Wendlandia tinctoria</i>	0.1378	1.5782	0.2057	1.0621	2.2711	0.5192
22	<i>Myrica esculenta</i>	0.1182	1.3308	0.1794	0.9019	1.9270	0.4347
23	<i>Albizia chinensis</i>	0.1002	1.1296	0.1516	0.7648	1.6345	0.3692
24	<i>Glochidion sphaerogynum</i>	0.0909	1.0508	0.1348	0.7051	1.5070	0.3474
25	<i>Styrax benzoides</i>	0.0732	0.8295	0.1104	0.5607	1.1986	0.2716
26	<i>Vaccinium sprengelii</i>	0.0553	0.6377	0.0821	0.4282	0.9151	0.2107
27	<i>Magnolia elegans</i>	0.0156	0.1826	0.0230	0.1221	0.2607	0.0607
28	<i>Eurya nitida</i>	0.0134	0.1570	0.0196	0.1049	0.2238	0.0524
29	<i>Terminalia chebula</i>	0.0078	0.0917	0.0114	0.0612	0.1305	0.0307
30	<i>Aporosa villosa</i>	0.0016	0.0197	0.0023	0.0130	0.0276	0.0068
31	<i>Acacia megaladena</i>	0.0002	0.0027	0.0003	0.0018	0.0037	0.0010
Total		140	965	126	680	1,329	251

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
	27 year-old pine plantation						
1	<i>Pinus kesiya</i>	55.6985	258.2181	29.9240	187.1846	327.9659	45.4201
2	<i>Schima wallichii</i>	26.2126	291.6221	40.3772	198.8697	423.8566	95.0363
3	<i>Castanopsis diversifolia</i>	2.7576	30.7188	4.2404	20.9336	44.6294	10.0132
4	<i>Glochidion sphaerogynum</i>	2.6237	29.4548	3.9991	19.9972	42.6820	9.6223
5	<i>Phoebe paniculata</i>	2.4659	27.5198	3.7877	18.7428	39.9535	8.9796
6	<i>Elaeocarpus sphaericus</i>	2.2578	25.1554	3.4696	17.1383	36.5458	8.1981
7	<i>Dalbergia velutina</i>	1.8203	20.8078	2.7239	14.0168	29.9641	6.8418
8	<i>Betula alnoides</i>	1.6848	18.5935	2.6243	12.7385	27.0935	6.0526
9	<i>Buchanania lanzan</i>	1.5645	17.2782	2.4353	11.8338	25.1703	5.6262
10	<i>Castanopsis purpurea</i>	1.4496	16.1053	2.2355	10.9888	23.4194	5.2455
11	<i>Wendlandia tinctoria</i>	1.1076	12.5337	1.6741	8.4789	18.1128	4.1053
12	<i>Lithocarpus elegans</i>	0.7263	8.2381	1.0949	5.5670	11.8954	2.7004
13	<i>Syzygium albiflorum</i>	0.5918	6.6388	0.9034	4.5099	9.6215	2.1693
14	<i>Styrax benzoides</i>	0.3805	4.2835	0.5795	2.9065	6.1994	1.4024
15	<i>Albizia odoratissima</i>	0.3748	4.1710	0.5771	2.8439	6.0616	1.3594
16	<i>Eurya nitida</i>	0.3335	3.7544	0.5081	2.5478	5.4336	1.2293
17	<i>Helicia terminalis</i>	0.3058	3.4721	0.4607	2.3456	5.0113	1.1390
18	<i>Quercus brandisiana</i>	0.2882	3.2108	0.4425	2.1870	4.6649	1.0461
19	<i>Symplocos racemosa</i>	0.2685	3.0324	0.4062	2.0524	4.3856	0.9920
20	<i>Castanopsis acuminatissima</i>	0.2499	2.7885	0.3830	1.8979	4.0494	0.9088
21	<i>Cleidion spiciflorum</i>	0.2008	2.2641	0.3040	1.5331	3.2762	0.7401
22	<i>Symplocos sp.</i>	0.1641	1.8609	0.2475	1.2578	2.6874	0.6099
23	<i>Lithocarpus fenestratus</i>	0.1320	1.5052	0.1979	1.0148	2.1697	0.4942
24	<i>Colona flagrocarpa</i>	0.1080	1.2164	0.1636	0.8240	1.7607	0.3975
25	<i>Memecylon edule</i>	0.0931	1.0677	0.1390	0.7185	1.5361	0.3515
26	<i>Syzygium cumini</i>	0.0874	0.9881	0.1320	0.6684	1.4285	0.3233
27	<i>Mallotus paniculatus</i>	0.0812	1.0321	0.1164	0.6798	1.4253	0.3627
28	<i>Markhamia pierrei</i>	0.0751	0.8515	0.1132	0.5754	1.2296	0.2790
29	<i>Engelhardtia spicata</i>	0.0616	0.7061	0.0918	0.4750	1.0157	0.2325
30	<i>Lithocarpus garrettianus</i>	0.0486	0.5559	0.0728	0.3746	0.8006	0.1828
31	<i>Semecarpus albescens</i>	0.0453	0.5170	0.0679	0.3485	0.7451	0.1698
32	<i>Helicia nilagirica</i>	0.0436	0.5031	0.0648	0.3378	0.7221	0.1661
33	<i>Neolitsea zeylanica</i>	0.0311	0.3951	0.0447	0.2603	0.5459	0.1387
34	<i>Myrica esculenta</i>	0.0290	0.3391	0.0429	0.2270	0.4843	0.1128
35	<i>Anneslea fragrans</i>	0.0265	0.3057	0.0394	0.2053	0.4388	0.1009
36	<i>Phoebe lanceolata</i>	0.0101	0.1253	0.0146	0.0830	0.1748	0.0434
37	<i>Catunaregam tomentosa</i>	0.0081	0.1067	0.0115	0.0700	0.1448	0.0386
38	<i>Phyllanthus emblica</i>	0.0067	0.0822	0.0097	0.0545	0.1153	0.0282
39	<i>Archidendron clypearia</i>	0.0053	0.0682	0.0076	0.0449	0.0940	0.0241
40	<i>Artocarpus sp.</i>	0.0048	0.0594	0.0069	0.0393	0.0829	0.0205
41	<i>Blumea balsamifera</i>	0.0029	0.0368	0.0041	0.0242	0.0506	0.0131
42	<i>Memecylon celastrinum</i>	0.0028	0.0360	0.0040	0.0237	0.0493	0.0128
43	<i>Cinnamomum iners</i>	0.0028	0.0356	0.0039	0.0234	0.0489	0.0126
44	<i>Litsea cubeba</i>	0.0026	0.0327	0.0037	0.0215	0.0451	0.0115
45	<i>Mussaenda sanderiana</i>	0.0024	0.0317	0.0034	0.0208	0.0429	0.0115
46	<i>Turpinia cochinchinensis</i>	0.0020	0.0245	0.0028	0.0162	0.0341	0.0085
47	<i>Vernonia volkamerifolia</i>	0.0017	0.0214	0.0024	0.0141	0.0295	0.0075
48	<i>Diospyros glandulosa</i>	0.0016	0.0203	0.0022	0.0133	0.0277	0.0073
49	<i>Euodia roxburghiana</i>	0.0015	0.0210	0.0022	0.0138	0.0282	0.0078
50	<i>Melastoma sanguineum</i>	0.0013	0.0167	0.0018	0.0110	0.0228	0.0060
51	<i>Milletia pachycarpa</i>	0.0013	0.0170	0.0018	0.0111	0.0230	0.0062
52	<i>Ternstroemia gymnanthera</i>	0.0010	0.0125	0.0014	0.0083	0.0174	0.0043
53	<i>Rhus javanica</i>	0.0009	0.0119	0.0013	0.0078	0.0162	0.0043
54	<i>Glochidion arborescens</i>	0.0009	0.0109	0.0012	0.0072	0.0150	0.0039
55	<i>Albizia chinensis</i>	0.0008	0.0108	0.0012	0.0071	0.0147	0.0039
56	<i>Lindera metcalfiana</i>	0.0007	0.0092	0.0010	0.0061	0.0126	0.0033
57	<i>Canthium sp.</i>	0.0006	0.0077	0.0009	0.0051	0.0106	0.0027
58	<i>Kydia calycina</i>	0.0006	0.0077	0.0009	0.0051	0.0106	0.0027
59	<i>Engelhardtia serrata</i>	0.0005	0.0068	0.0008	0.0045	0.0094	0.0024
60	<i>Acacia megaladena</i>	0.0005	0.0061	0.0006	0.0040	0.0082	0.0022
61	<i>Magnolia henryi</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
62	<i>Artocarpus lacucha</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
63	<i>Viburnum sambucinum</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
64	<i>Acacia pennata</i>	0.0004	0.0057	0.0006	0.0038	0.0077	0.0021
65	<i>Syzygium sp.</i>	0.0004	0.0048	0.0005	0.0032	0.0066	0.0018
66	<i>Antidesma acidum</i>	0.0004	0.0047	0.0005	0.0031	0.0064	0.0017
67	<i>Craibiodendron stellatum</i>	0.0003	0.0039	0.0004	0.0026	0.0053	0.0014
68	<i>Antiaris toxicaria</i>	0.0002	0.0024	0.0003	0.0016	0.0033	0.0009
69	<i>Gluta obovata</i>	0.0002	0.0023	0.0002	0.0015	0.0031	0.0008
70	<i>Ficus callosa</i>	0.0001	0.0016	0.0002	0.0010	0.0021	0.0006
	Total	104	803	105	558	1,118	223

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
28 year-old pine plantation							
1	<i>Pinus kesiya</i>	63.8028	294.0390	34.7628	216.3033	375.8370	51.6391
2	<i>Schima wallichii</i>	11.1526	123.5431	17.2777	84.4505	179.8105	40.2313
3	<i>Engelhardtia spicata</i>	1.3268	14.8229	2.0337	10.0873	21.5143	4.8359
4	<i>Glochidion sphaerogynum</i>	1.1868	13.2909	1.8141	9.0342	19.2750	4.3391
5	<i>Markhamia stipulata</i>	0.6598	7.4123	1.0034	5.0282	10.7398	2.4200
6	<i>Castanopsis diversifolia</i>	0.6310	7.0604	0.9655	4.8013	10.2420	2.3047
7	<i>Entada rheedii</i>	0.5440	6.0254	0.8425	4.1184	8.7704	1.9616
8	<i>Colona flagrocarpa</i>	0.4207	4.6708	0.6492	3.1879	6.7933	1.5211
9	<i>Stereospermum neuranthum</i>	0.2773	3.1127	0.4224	2.1128	4.5111	1.0163
10	<i>Castanopsis purpurea</i>	0.2712	3.0240	0.4162	2.0591	4.3926	0.9853
11	<i>Erythrina subumbrans</i>	0.1054	1.2041	0.1580	0.8115	1.7346	0.3958
12	<i>Gmelina arborea</i>	0.0972	1.1188	0.1448	0.7521	1.6068	0.3694
13	<i>Dalbergia foliacea</i>	0.0756	0.8730	0.1123	0.5862	1.2527	0.2884
14	<i>Vaccinium sprengelii</i>	0.0747	0.8462	0.1127	0.5720	1.2228	0.2770
15	<i>Dalbergia assamica</i>	0.0604	0.6936	0.0900	0.4664	0.9969	0.2286
16	<i>Phyllanthus emblica</i>	0.0465	0.5388	0.0689	0.3614	0.7720	0.1784
17	<i>Albizia odoratissima</i>	0.0446	0.5095	0.0668	0.3433	0.7339	0.1674
18	<i>Syzygium albiflorum</i>	0.0420	0.4817	0.0626	0.3241	0.6926	0.1588
19	<i>Litsea cubeba</i>	0.0326	0.4022	0.0470	0.2660	0.5621	0.1385
20	<i>Ficus ribes</i>	0.0291	0.3445	0.0427	0.2299	0.4898	0.1155
21	<i>Diospyros glandulosa</i>	0.0132	0.1612	0.0191	0.1068	0.2262	0.0551
22	<i>Musa acuminata</i>	0.0079	0.0931	0.0116	0.0621	0.1325	0.0311
23	<i>Archidendron clypearia</i>	0.0070	0.0840	0.0101	0.0558	0.1185	0.0285
24	<i>Phoebe paniculata</i>	0.0056	0.0703	0.0080	0.0464	0.0976	0.0245
25	<i>Wendlandia tinctoria</i>	0.0040	0.0504	0.0057	0.0333	0.0699	0.0176
26	<i>Vernonia volkameriifolia</i>	0.0039	0.0486	0.0056	0.0321	0.0676	0.0168
27	<i>Horsfieldia tomentosa</i>	0.0025	0.0304	0.0036	0.0202	0.0428	0.0104
28	<i>Rhus javanica</i>	0.0023	0.0281	0.0032	0.0186	0.0392	0.0097
29	<i>Phoebe lanceolata</i>	0.0015	0.0193	0.0022	0.0127	0.0267	0.0067
30	<i>Acacia megaladena</i>	0.0006	0.0080	0.0009	0.0052	0.0110	0.0028
31	<i>Eriolaena candollei</i>	0.0006	0.0077	0.0009	0.0051	0.0106	0.0027
32	<i>Melastoma sanguineum</i>	0.0006	0.0078	0.0009	0.0051	0.0107	0.0028
33	<i>Litsea monopetala</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
34	<i>Syzygium cumini</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
35	<i>Aporosa villosa</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
	Total	81	485	61	346	653	114
29 year-old pine plantation							
1	<i>Pinus kesiya</i>	35.3790	164.5649	18.8779	118.4300	208.4427	28.9700
2	<i>Castanopsis purpurea</i>	5.6731	63.1259	8.7570	43.0769	91.7298	20.5984
3	<i>Schima wallichii</i>	4.7972	53.1786	7.4320	36.3486	77.3750	17.3285
4	<i>Helicia terminalis</i>	3.3912	37.9895	5.1782	25.8127	55.0916	12.3988
5	<i>Anneslea fragrans</i>	2.0808	22.8937	3.2603	15.7215	33.3879	7.4565
6	<i>Quercus vestita</i>	0.9647	10.7499	1.4823	7.3234	15.6170	3.5035
7	<i>Castanopsis diversifolia</i>	0.8395	9.3048	1.3018	6.3622	13.5379	3.0334
8	<i>Helicia nilagirica</i>	0.7477	8.3392	1.1490	5.6809	12.1095	2.7205
9	<i>Toona ciliata</i>	0.6064	6.7530	0.9321	4.6014	9.8127	2.2001
10	<i>Myrica esculenta</i>	0.5543	6.2446	0.8413	4.2320	9.0386	2.0417
11	<i>Engelhardtia spicata</i>	0.4588	5.1146	0.7053	3.4847	7.4289	1.6678
12	<i>Wendlandia tinctoria</i>	0.3285	3.8310	0.4845	2.5639	5.4761	1.2725
13	<i>Eriolaena candollei</i>	0.3087	3.4552	0.4717	2.3484	5.0122	1.1272
14	<i>Erythrina subumbrans</i>	0.2979	3.3183	0.4577	2.2607	4.8215	1.0810
15	<i>Cycas pectinata</i>	0.1866	2.1184	0.2807	1.4304	3.0584	0.6941
16	<i>Acacia megaladena</i>	0.1181	1.3383	0.1781	0.9046	1.9333	0.4383
17	<i>Camellia pleurocarpa</i>	0.0962	1.0917	0.1450	0.7375	1.5763	0.3578
18	<i>Phyllanthus emblica</i>	0.0924	1.0596	0.1382	0.7133	1.5243	0.3490
19	<i>Ternstroemia gymnanthera</i>	0.0842	0.9520	0.1272	0.6439	1.3764	0.3114
20	<i>Tadehagi triquetrum</i>	0.0594	0.6792	0.0890	0.4576	0.9782	0.2233
21	<i>Lithocarpus elegans</i>	0.0400	0.4569	0.0598	0.3077	0.6580	0.1501
22	<i>Dalbergia foliacea</i>	0.0327	0.3753	0.0488	0.2525	0.5399	0.1235
23	<i>Morinda tomentosa</i>	0.0250	0.2883	0.0372	0.1936	0.4140	0.0951

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
24	<i>Pterospermum acerifolium</i>	0.0222	0.2563	0.0329	0.1720	0.3678	0.0846
25	<i>Glochidion sphaerogynum</i>	0.0158	0.1838	0.0234	0.1231	0.2631	0.0609
26	<i>Blumea balsamifera</i>	0.0125	0.1530	0.0181	0.1014	0.2149	0.0523
27	<i>Glochidion hirsutum</i>	0.0114	0.1335	0.0168	0.0893	0.1906	0.0444
28	<i>Catunaregam tomentosa</i>	0.0072	0.0867	0.0105	0.0576	0.1225	0.0293
29	<i>Antidesma acidum</i>	0.0070	0.0825	0.0102	0.0550	0.1173	0.0276
30	<i>Melastoma sanguineum</i>	0.0039	0.0497	0.0057	0.0328	0.0689	0.0174
31	<i>Litsea cubeba</i>	0.0006	0.0080	0.0009	0.0052	0.0110	0.0028
32	<i>Syzygium cumini</i>	0.0002	0.0031	0.0003	0.0021	0.0043	0.0011
Total		57	408	53	285	562	108
30 year-old pine plantation							
1	<i>Pinus kesiya</i>	63.1332	291.3482	34.2940	213.6382	371.8999	51.1845
2	<i>Castanopsis diversifolia</i>	12.2979	134.5843	19.5344	92.9082	196.5355	43.9600
3	<i>Schima wallichii</i>	11.7003	130.5009	17.9607	88.8677	189.5221	42.5464
4	<i>Castanopsis purpurea</i>	3.8170	42.2694	5.9148	28.8976	61.5280	13.7628
5	<i>Dalbergia assamica</i>	2.9485	32.8512	4.5365	22.3903	47.7218	10.7131
6	<i>Engelhardtia spicata</i>	2.6207	29.2525	4.0206	19.9147	42.4702	9.5407
7	<i>Lithocarpus elegans</i>	2.1750	24.4167	3.3117	16.5712	35.3848	7.9720
8	<i>Canarium subulatum</i>	0.4345	4.8222	0.6709	3.2920	7.0147	1.5701
9	<i>Dolichandrone serrulata</i>	0.3974	4.4484	0.6074	3.0236	6.4530	1.4513
10	<i>Myrica esculenta</i>	0.3949	4.4172	0.6036	3.0027	6.4095	1.4404
11	<i>Sapindus rarak</i>	0.3119	3.4720	0.4794	2.3659	5.0455	1.1310
12	<i>Albizia odoratissima</i>	0.2564	2.8821	0.3902	1.9554	4.1747	0.9418
13	<i>Symplocos sp.</i>	0.2339	2.6122	0.3583	1.7773	3.7926	0.8514
14	<i>Garuga pinnata</i>	0.2216	2.4757	0.3391	1.6838	3.5936	0.8070
15	<i>Elaeocarpus sphaericus</i>	0.1756	1.9813	0.2660	1.3416	2.8666	0.6478
16	<i>Wendlandia tinctoria</i>	0.1286	1.4812	0.1914	0.9952	2.1274	0.4887
17	<i>Gluta obovata</i>	0.1198	1.3676	0.1794	0.9216	1.9706	0.4493
18	<i>Blumea balsamifera</i>	0.1114	1.2549	0.1689	0.8502	1.8166	0.4100
19	<i>Markhamia stipulata</i>	0.1077	1.2229	0.1622	0.8261	1.7654	0.4010
20	<i>Colona flagrocarpa</i>	0.0786	0.8984	0.1177	0.6052	1.2941	0.2952
21	<i>Gluta usitata</i>	0.0725	0.8313	0.1081	0.5593	1.1956	0.2738
22	<i>Engelhardtia serrata</i>	0.0488	0.5561	0.0732	0.3749	0.8018	0.1825
23	<i>Gmelina arborea</i>	0.0419	0.4819	0.0625	0.3241	0.6926	0.1588
24	<i>Aporosa villosa</i>	0.0339	0.3880	0.0505	0.2610	0.5582	0.1277
25	<i>Magnolia henryi</i>	0.0323	0.3743	0.0478	0.2510	0.5364	0.1239
26	<i>Castanopsis acuminatissima</i>	0.0200	0.2317	0.0297	0.1554	0.3323	0.0766
27	<i>Vaccinium sprengelii</i>	0.0186	0.2157	0.0276	0.1446	0.3091	0.0713
28	<i>Erythrina subumbrans</i>	0.0183	0.2119	0.0271	0.1421	0.3037	0.0701
29	<i>Acacia megaladena</i>	0.0168	0.1945	0.0248	0.1303	0.2785	0.0644
30	<i>Symplocos racemosa</i>	0.0107	0.1268	0.0156	0.0844	0.1799	0.0426
31	<i>Phyllanthus emblica</i>	0.0097	0.1166	0.0141	0.0775	0.1648	0.0394
32	<i>Syzygium albiflorum</i>	0.0081	0.0961	0.0119	0.0641	0.1365	0.0322
33	<i>Morinda tomentosa</i>	0.0027	0.0325	0.0039	0.0216	0.0458	0.0110
34	<i>Phoebe paniculata</i>	0.0018	0.0216	0.0025	0.0143	0.0302	0.0074
35	<i>Camellia pleurocarpa</i>	0.0010	0.0125	0.0014	0.0083	0.0174	0.0043
36	<i>Lithocarpus sootepensis</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
Total		102	722	95	508	999	192
31 year-old pine plantation							
1	<i>Pinus kesiya</i>	36.5291	168.3401	19.9143	123.9008	215.2534	29.5625
2	<i>Castanopsis diversifolia</i>	22.1793	245.1754	34.5270	167.9052	357.0320	79.9018
3	<i>Schima wallichii</i>	17.2458	191.2660	26.7114	130.7163	278.2449	62.3435
4	<i>Castanopsis acuminatissima</i>	7.4443	82.1659	11.6023	56.3025	119.7169	26.7584
5	<i>Syzygium albiflorum</i>	4.3469	47.6233	6.8825	32.8357	69.5253	15.5426
6	<i>Wendlandia tinctoria</i>	4.0444	46.0605	6.0725	31.0729	66.4167	15.1215
7	<i>Myrica esculenta</i>	1.7637	19.6707	2.7067	13.3942	28.5680	6.4122
8	<i>Olea salicifolia</i>	1.7151	18.9255	2.6720	12.9671	27.5782	6.1607
9	<i>Syzygium cumini</i>	1.7121	18.8152	2.6888	12.9324	27.4484	6.1295
10	<i>Helicia terminalis</i>	1.6370	18.3793	2.4937	12.4755	26.6329	6.0029
11	<i>Elaeocarpus sphaericus</i>	0.9798	10.9763	1.4966	7.4589	15.9172	3.5830
12	<i>Ternstroemia gymnanthera</i>	0.9247	10.2908	1.4249	7.0183	14.9544	3.3553
13	<i>Dalbergia cultrata</i>	0.8520	9.4567	1.3152	6.4553	13.7556	3.0792

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
14	<i>Canarium subulatum</i>	0.7677	8.5296	1.1835	5.8191	12.4034	2.7777
15	<i>Docynia indica</i>	0.4614	5.1710	0.7037	3.5120	7.4981	1.6873
16	<i>Symplocos sp.</i>	0.3876	4.3695	0.5874	2.9596	6.3237	1.4283
17	<i>Phoebe paniculata</i>	0.3794	4.2494	0.5792	2.8872	6.1632	1.3864
18	<i>Anneslea fragrans</i>	0.3723	4.2118	0.5622	2.8485	6.0881	1.3785
19	<i>Phyllanthus emblica</i>	0.2762	3.1648	0.4125	2.1301	4.5538	1.0416
20	<i>Rapanea porteri</i>	0.2193	2.5052	0.3284	1.6879	3.6087	0.8233
21	<i>Eurya nitida</i>	0.1944	2.1905	0.2947	1.4839	3.1705	0.7159
22	<i>Gluta obovata</i>	0.1870	2.1148	0.2828	1.4311	3.0566	0.6927
23	<i>Engelhardtia spicata</i>	0.1292	1.4810	0.1929	0.9967	2.1305	0.4877
24	<i>Diospyros glandulosa</i>	0.1070	1.2135	0.1612	0.8199	1.7524	0.3977
25	<i>Helicia nilagirica</i>	0.1042	1.1837	0.1568	0.7994	1.7082	0.3883
26	<i>Gochnatia decora</i>	0.0970	1.0939	0.1467	0.7406	1.5827	0.3576
27	<i>Styrax benzoides</i>	0.0706	0.8000	0.1064	0.5406	1.1557	0.2620
28	<i>Albizia odoratissima</i>	0.0689	0.7814	0.1038	0.5279	1.1286	0.2559
29	<i>Betula alnoides</i>	0.0672	0.7620	0.1012	0.5148	1.1005	0.2496
30	<i>Glochidion sphaerogynum</i>	0.0512	0.5827	0.0768	0.3930	0.8404	0.1912
31	<i>Memecylon celastrinum</i>	0.0499	0.5797	0.0738	0.3884	0.8295	0.1923
32	<i>Lithocarpus thomsonii</i>	0.0400	0.4569	0.0598	0.3077	0.6580	0.1501
33	<i>Ardisia attenuata</i>	0.0333	0.3822	0.0497	0.2572	0.5499	0.1258
34	<i>Turpinia pomifera</i>	0.0198	0.2289	0.0293	0.1535	0.3282	0.0757
35	<i>Eriolaena candollei</i>	0.0046	0.0555	0.0068	0.0369	0.0786	0.0187
36	<i>Ficus tinctoria</i>	0.0034	0.0405	0.0049	0.0269	0.0572	0.0137
37	<i>Ficus maclellandii</i>	0.0005	0.0066	0.0007	0.0044	0.0092	0.0023
38	<i>Acacia megaladena</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
39	<i>Erythrina subumbrans</i>	0.0002	0.0021	0.0002	0.0014	0.0029	0.0008
Total		105	933	127	647	1,328	279
32 year-old pine plantation							
1	<i>Pinus kesiya</i>	71.5395	330.5107	38.7240	241.5001	421.1263	58.0856
2	<i>Schima wallichii</i>	20.4119	225.3400	31.8211	154.4193	328.2903	73.4090
3	<i>Syzygium cumini</i>	7.7032	83.9032	12.3312	58.1096	122.6983	27.4111
4	<i>Castanopsis acuminatissima</i>	5.7765	63.8145	8.9834	43.6914	92.9582	20.7740
5	<i>Phoebe paniculata</i>	2.2833	25.0943	3.5859	17.2483	36.6077	8.1758
6	<i>Xanthophyllum virens</i>	1.6860	18.6672	2.6157	12.7671	27.1723	6.0808
7	<i>Elaeocarpus sphaericus</i>	1.3602	15.1714	2.0870	10.3297	22.0336	4.9450
8	<i>Magnolia henryi</i>	1.3082	14.4134	2.0452	9.8887	21.0117	4.6942
9	<i>Castanopsis tribuloides</i>	1.0690	11.8418	1.6553	8.0934	17.2359	3.8551
10	<i>Knema erratica</i>	0.9298	10.2540	1.4501	7.0286	14.9449	3.3380
11	<i>Betula alnoides</i>	0.7789	8.6018	1.2120	5.8906	12.5317	2.8000
12	<i>Albizia chinensis</i>	0.6406	7.0850	0.9942	4.8469	10.3170	2.3063
13	<i>Engelhardtia spicata</i>	0.4844	5.4074	0.7423	3.6797	7.8516	1.7623
14	<i>Erythrina subumbrans</i>	0.4331	4.8069	0.6688	3.2816	6.9925	1.5652
15	<i>Myrica esculenta</i>	0.3121	3.5044	0.4752	2.3782	5.0784	1.1442
16	<i>Glochidion sphaerogynum</i>	0.2555	2.8664	0.3898	1.9467	4.1547	0.9362
17	<i>Symplocos sp.</i>	0.2385	2.6625	0.3653	1.8116	3.8658	0.8678
18	<i>Anneslea fragrans</i>	0.2277	2.5431	0.3486	1.7300	3.6918	0.8289
19	<i>Styrax benzoides</i>	0.1831	2.0744	0.2760	1.4020	2.9966	0.6795
20	<i>Luvunga scandens</i>	0.1297	1.4581	0.1971	0.9887	2.1122	0.4761
21	<i>Musa acuminata</i>	0.0840	0.9627	0.1254	0.6478	1.3849	0.3170
22	<i>Syzygium sp.</i>	0.0825	0.9390	0.1241	0.6339	1.3539	0.3085
23	<i>Gmelina arborea</i>	0.0400	0.4569	0.0598	0.3077	0.6580	0.1501
24	<i>Eurya nitida</i>	0.0382	0.4366	0.0571	0.2940	0.6287	0.1435
25	<i>Syzygium albiflorum</i>	0.0229	0.2743	0.0333	0.1824	0.3879	0.0927
26	<i>Memecylon celastrinum</i>	0.0203	0.2351	0.0301	0.1577	0.3371	0.0777
27	<i>Wendlandia tinctoria</i>	0.0168	0.1998	0.0245	0.1331	0.2835	0.0671
28	<i>Phyllanthus emblica</i>	0.0111	0.1318	0.0162	0.0878	0.1871	0.0442
29	<i>Olea salicifolia</i>	0.0082	0.0961	0.0120	0.0641	0.1368	0.0321
30	<i>Syzygium sp.</i>	0.0070	0.0828	0.0102	0.0552	0.1177	0.0277
31	<i>Milletia pachycarpa</i>	0.0041	0.0501	0.0059	0.0332	0.0704	0.0171
32	<i>Litsea cubeba</i>	0.0022	0.0291	0.0031	0.0191	0.0394	0.0106
33	<i>Albizia odoratissima</i>	0.0011	0.0141	0.0016	0.0093	0.0196	0.0049
34	<i>Trichilla connaroides</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
Total		118	844	111	594	1,169	225

Appendix Table 2-1 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
	34 year-old pine plantation						
1	<i>Pinus kesiya</i>	48.7658	225.1855	26.4652	164.9480	287.3630	39.5660
2	<i>Castanopsis purpurea</i>	24.5287	272.3472	37.9056	185.9653	396.0772	88.7526
3	<i>Quercus vestita</i>	11.0817	122.2032	17.2994	83.7917	178.0974	39.8007
4	<i>Schima wallichii</i>	7.9698	87.7018	12.4862	60.2225	127.8947	28.5670
5	<i>Quercus brandisiana</i>	5.4278	60.3446	8.3740	41.1761	87.7227	19.6702
6	<i>Syzygium cumini</i>	2.6113	28.5988	4.1260	19.7058	41.7629	9.3201
7	<i>Wendlandia tinctoria</i>	1.3854	15.8097	2.0762	10.6569	22.7804	5.1946
8	<i>Dalbergia assamica</i>	1.2654	14.2035	1.9329	9.6498	20.5794	4.6446
9	<i>Viburnum sambucinum</i>	0.6856	7.5962	1.0624	5.1929	11.0550	2.4743
10	<i>Aporosa villosa</i>	0.5788	6.6131	0.8671	4.4566	9.5245	2.1745
11	<i>Glochidion sphaerogynum</i>	0.4620	5.2171	0.7005	3.5336	7.5443	1.7084
12	<i>Craibiodendron stellatum</i>	0.3529	3.9994	0.5332	2.7048	5.7761	1.3114
13	<i>Lithocarpus elegans</i>	0.3256	3.6428	0.4982	2.4772	5.2848	1.1889
14	<i>Albizia odoratissima</i>	0.3076	3.4913	0.4630	2.3578	5.0409	1.1440
15	<i>Phyllanthus emblica</i>	0.2586	3.0558	0.3790	2.0387	4.3454	1.0235
16	<i>Cycas pectinata</i>	0.2079	2.3589	0.3132	1.5936	3.4059	0.7732
17	<i>Lithocarpus sootepensis</i>	0.1983	2.2186	0.3031	1.5081	3.2192	0.7234
18	<i>Stereospermum colias</i>	0.1779	1.9920	0.2714	1.3532	2.8893	0.6498
19	<i>Vaccinium sprengelii</i>	0.1274	1.4426	0.1926	0.9759	2.0842	0.4728
20	<i>Glochidion hirsutum</i>	0.1254	1.4468	0.1862	0.9714	2.0762	0.4780
21	<i>Eriolaena candollei</i>	0.1217	1.3966	0.1815	0.9395	2.0084	0.4601
22	<i>Horsfieldia tomentosa</i>	0.0501	0.5709	0.0752	0.3850	0.8232	0.1873
23	<i>Albizia chinensis</i>	0.0360	0.4120	0.0537	0.2773	0.5930	0.1355
24	<i>Canarium subulatum</i>	0.0330	0.3781	0.0492	0.2544	0.5439	0.1244
25	<i>Anneslea fragrans</i>	0.0280	0.3270	0.0414	0.2189	0.4674	0.1087
26	<i>Pavetta tomentosa</i>	0.0231	0.2692	0.0341	0.1802	0.3847	0.0895
27	<i>Helicia nilagirica</i>	0.0187	0.2182	0.0275	0.1459	0.3116	0.0726
28	<i>Styrax benzoides</i>	0.0179	0.2088	0.0265	0.1398	0.2987	0.0693
29	<i>Diospyros glandulosa</i>	0.0158	0.1838	0.0234	0.1231	0.2631	0.0609
30	<i>Gluta usitata</i>	0.0158	0.1838	0.0234	0.1231	0.2631	0.0609
31	<i>Antidesma acidum</i>	0.0136	0.1629	0.0198	0.1084	0.2306	0.0550
32	<i>Dalbergia cultrata</i>	0.0117	0.1363	0.0172	0.0911	0.1947	0.0453
33	<i>Phoebe paniculata</i>	0.0100	0.1206	0.0146	0.0801	0.1704	0.0408
34	<i>Canthium sp.</i>	0.0099	0.1199	0.0143	0.0795	0.1688	0.0408
35	<i>Engelhardtia spicata</i>	0.0089	0.1070	0.0129	0.0711	0.1511	0.0362
36	<i>Protium serratum</i>	0.0047	0.0585	0.0067	0.0386	0.0812	0.0204
37	<i>Dillenia aurea</i>	0.0040	0.0480	0.0057	0.0319	0.0676	0.0164
38	<i>Syzygium albiflorum</i>	0.0034	0.0431	0.0049	0.0284	0.0599	0.0150
39	<i>Rhus javanica</i>	0.0018	0.0235	0.0026	0.0155	0.0324	0.0083
40	<i>Tristania rufescens</i>	0.0014	0.0167	0.0019	0.0110	0.0233	0.0058
41	<i>Symplocos racemosa</i>	0.0012	0.0153	0.0018	0.0101	0.0213	0.0053
42	<i>Schoepfia fragrans</i>	0.0011	0.0141	0.0016	0.0093	0.0196	0.0049
43	<i>Litsea cubeba</i>	0.0011	0.0141	0.0016	0.0093	0.0196	0.0049
44	<i>Maesa permollis</i>	0.0009	0.0117	0.0013	0.0077	0.0160	0.0042
45	<i>Blumea balsamifera</i>	0.0009	0.0108	0.0012	0.0071	0.0150	0.0038
46	<i>Castanopsis diversifolia</i>	0.0006	0.0077	0.0009	0.0051	0.0106	0.0027
47	<i>Eurya nitida</i>	0.0004	0.0057	0.0006	0.0037	0.0078	0.0020
48	<i>Celastrus paniculata</i>	0.0004	0.0055	0.0006	0.0036	0.0075	0.0019
49	<i>Tadehagi triquetrum</i>	0.0003	0.0045	0.0005	0.0029	0.0061	0.0016
50	<i>Engelhardtia serrata</i>	0.0003	0.0039	0.0004	0.0026	0.0053	0.0014
	Total	107	875	117	609	1,232	251

Appendix Table 2-2 Carbon and nutrient storages of tree species in a fifteen adjacent fragmented forests.

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
1	<i>Pinus kesiya</i>	32.6958	359.26	51.38	246.98	524.12	117.06
2	<i>Castanopsis acuminatissima</i>	12.6714	140.24	19.68	95.95	204.16	45.69
3	<i>Schima wallichii</i>	7.1175	78.99	11.01	53.96	114.89	25.75
4	<i>Castanopsis diversifolia</i>	5.8931	64.97	9.21	44.57	94.69	21.17
5	<i>Quercus brandisiana</i>	4.5949	50.88	7.13	34.80	74.05	16.58
6	<i>Tristania rufescens</i>	3.2251	36.28	4.91	24.62	52.52	11.87
7	<i>Castanopsis purpurea</i>	3.1036	34.38	4.81	23.51	50.04	11.20
8	<i>Lithocarpus elegans</i>	2.7388	30.49	4.22	20.79	44.31	9.95
9	<i>Engelhardtia spicata</i>	2.7291	30.30	4.22	20.69	44.07	9.88
10	<i>Ternstroemia gymnanthera</i>	2.3646	26.42	3.62	17.98	38.35	8.62
11	<i>Helicia terminalis</i>	2.0234	22.55	3.11	15.37	32.76	7.36
12	<i>Anneslea fragrans</i>	1.6036	17.93	2.45	12.20	26.02	5.85
13	<i>Dalbergia cultrata</i>	1.5331	17.07	2.36	11.64	24.80	5.57
14	<i>Wendlandia tinctoria</i>	1.5222	17.36	2.28	11.71	25.02	5.70
15	<i>Quercus vestita</i>	1.2822	14.35	1.96	9.76	20.81	4.68
16	<i>Quercus semiserrata</i>	1.2038	13.30	1.87	9.11	19.37	4.33
17	<i>Castanopsis armata</i>	0.8504	9.29	1.35	6.42	13.57	3.03
18	<i>Vaccinium sprengelii</i>	0.8834	10.14	1.32	6.82	14.58	3.34
19	<i>Elaeocarpus stipularis</i>	0.7878	8.65	1.24	5.95	12.62	2.82
20	<i>Lithocarpus fenestratus</i>	0.7792	8.71	1.19	5.92	12.64	2.84
21	<i>Glochidion acuminatum</i>	0.7083	7.88	1.09	5.38	11.46	2.57
22	<i>Lithocarpus polystachyus</i>	0.5599	6.26	0.86	4.26	9.09	2.04
23	<i>Phoebe paniculata</i>	0.5311	5.96	0.81	4.05	8.63	1.95
24	<i>Styrax benzoides</i>	0.4791	5.37	0.73	3.65	7.79	1.76
25	<i>Phoebe cathia</i>	0.4546	5.01	0.71	3.44	7.30	1.63
26	<i>Callicarpa arborea</i>	0.4580	5.13	0.70	3.49	7.44	1.68
27	<i>Craibiodendron stellatum</i>	0.4414	5.03	0.66	3.39	7.25	1.65
28	<i>Syzygium gratum</i>	0.4259	4.75	0.65	3.24	6.90	1.55
29	<i>Helicia nilagirica</i>	0.3644	4.07	0.56	2.77	5.91	1.33
30	<i>Buchanania lanzan</i>	0.3556	3.92	0.56	2.69	5.71	1.28
31	<i>Engelhardtia serrata</i>	0.3423	3.79	0.53	2.59	5.52	1.23
32	<i>Glochidion sphaerogynum</i>	0.2768	3.13	0.42	2.12	4.53	1.03
33	<i>Eurya nitida</i>	0.2765	3.13	0.42	2.12	4.52	1.03
34	<i>Diospyros glandulosa</i>	0.2713	3.05	0.41	2.07	4.41	1.00
35	<i>Phyllanthus emblica</i>	0.2421	2.78	0.36	1.87	3.99	0.92
36	<i>Eriolaena candollei</i>	0.2172	2.43	0.33	1.65	3.52	0.79
37	<i>Lithocarpus sootepensis</i>	0.2036	2.32	0.31	1.56	3.34	0.76
38	<i>Dillenia aurea</i>	0.1936	2.18	0.29	1.48	3.16	0.71
39	<i>Syzygium albiflorum</i>	0.1775	1.98	0.27	1.35	2.88	0.65
40	<i>Aporosa villosa</i>	0.1705	1.95	0.26	1.31	2.81	0.64
41	<i>Albizia odoratissima</i>	0.1649	1.85	0.25	1.25	2.68	0.60
42	<i>Albizia chinensis</i>	0.1626	1.82	0.25	1.24	2.64	0.59
43	<i>Terminalia chebula</i>	0.1607	1.79	0.25	1.22	2.60	0.59
44	<i>Bombax anceps</i>	0.1586	1.77	0.24	1.20	2.57	0.58
45	<i>Rapanea porteriiana</i>	0.1451	1.64	0.22	1.11	2.37	0.54
46	<i>Lindera metcalfiana</i>	0.1318	1.48	0.20	1.01	2.15	0.48
47	<i>Litsea semecarpifolia</i>	0.1181	1.32	0.18	0.90	1.91	0.43
48	<i>Symplocos racemosa</i>	0.1054	1.19	0.16	0.81	1.72	0.39
49	<i>Embelia subcoriacea</i>	0.1014	1.13	0.16	0.77	1.64	0.37
50	<i>Lithocarpus lindleyanus</i>	0.0904	1.00	0.14	0.69	1.46	0.33
51	<i>Stereospermum neuranthum</i>	0.0899	1.03	0.13	0.69	1.48	0.34
52	<i>Gluta usitata</i>	0.0832	0.92	0.13	0.63	1.34	0.30
53	<i>Archidendron clypearia</i>	0.0830	0.93	0.13	0.63	1.35	0.30
54	<i>Litsea glutinosa</i>	0.0818	0.91	0.13	0.62	1.32	0.30
55	<i>Betula alnoides</i>	0.0683	0.77	0.10	0.52	1.11	0.25
56	<i>Olea salicifolia</i>	0.0549	0.62	0.08	0.42	0.89	0.20
57	<i>Erythrina subumbrans</i>	0.0540	0.61	0.08	0.41	0.88	0.20
58	<i>Ampelocissus martinii</i>	0.0539	0.61	0.08	0.41	0.88	0.20
59	<i>Sarcosperma arboreum</i>	0.0483	0.54	0.07	0.37	0.78	0.18

Appendix Table 2-2 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
60	<i>Vitex pinnata</i>	0.0458	0.51	0.07	0.35	0.74	0.17
61	<i>Magnolia henryi</i>	0.0425	0.48	0.06	0.32	0.69	0.16
62	<i>Ilex umbellulata</i>	0.0384	0.44	0.06	0.30	0.63	0.14
63	<i>Gardenia sootepensis</i>	0.0365	0.41	0.05	0.28	0.60	0.14
64	<i>Kydia calycina</i>	0.0351	0.39	0.05	0.27	0.57	0.13
65	<i>Turpinia cochinchinensis</i>	0.0355	0.41	0.05	0.27	0.59	0.13
66	<i>Viburnum sambucinum</i>	0.0354	0.42	0.05	0.28	0.60	0.14
67	<i>Pyrenaria diospyricarpa</i>	0.0350	0.41	0.05	0.27	0.58	0.14
68	<i>Quercus kingiana</i>	0.0284	0.33	0.04	0.22	0.47	0.11
69	<i>Colona flagrocarpa</i>	0.0245	0.28	0.04	0.19	0.40	0.09
70	<i>Milletia pachycarpa</i>	0.0229	0.26	0.03	0.18	0.38	0.09
71	<i>Dalbergia velutina</i>	0.0190	0.21	0.03	0.15	0.31	0.07
72	<i>Trichilla connaroides</i>	0.0185	0.21	0.03	0.14	0.31	0.07
73	<i>Dolichandrone serrulata</i>	0.0181	0.21	0.03	0.14	0.30	0.07
74	<i>Radermachera ignea</i>	0.0176	0.20	0.03	0.13	0.29	0.06
75	<i>Gordonia dalglieshiana</i>	0.0149	0.17	0.02	0.12	0.25	0.06
76	<i>Combretum punctatum</i>	0.0130	0.15	0.02	0.10	0.21	0.05
77	<i>Syzygium cumini</i>	0.0126	0.14	0.02	0.10	0.21	0.05
78	<i>Garuga pinnata</i>	0.0127	0.15	0.02	0.10	0.21	0.05
79	<i>Shorea roxburghii</i>	0.0124	0.14	0.02	0.09	0.20	0.05
80	<i>Cinnamomum iners</i>	0.0119	0.13	0.02	0.09	0.19	0.04
81	<i>Vernonia volkamerifolia</i>	0.0118	0.14	0.02	0.09	0.20	0.05
82	<i>Beilschmiedia gammieana</i>	0.0111	0.13	0.02	0.09	0.18	0.04
83	<i>Saurauia roxburghii</i>	0.0110	0.13	0.02	0.09	0.18	0.04
84	<i>Glochidion hirsutum</i>	0.0108	0.13	0.02	0.09	0.18	0.04
85	<i>Artocarpus gomezianus</i>	0.0085	0.10	0.01	0.07	0.14	0.03
86	<i>Pterospermum acerifolium</i>	0.0072	0.09	0.01	0.06	0.12	0.03
87	<i>Semecarpus albescens</i>	0.0070	0.09	0.01	0.06	0.12	0.03
88	<i>Entada rheedii</i>	0.0051	0.06	0.01	0.04	0.08	0.02
89	<i>Schefflera bengalensis</i>	0.0050	0.06	0.01	0.04	0.08	0.02
90	<i>Catunaregam tomentosa</i>	0.0037	0.04	0.01	0.03	0.06	0.02
91	<i>Antidesma ghaesembilla</i>	0.0033	0.04	0.00	0.03	0.06	0.01
92	<i>Mussaenda sanderiana</i>	0.0030	0.04	0.00	0.02	0.05	0.01
93	<i>Rhus javanica</i>	0.0023	0.03	0.00	0.02	0.04	0.01
94	<i>Ficus sp.</i>	0.0019	0.02	0.00	0.01	0.03	0.01
95	<i>Canarium subulatum</i>	0.0013	0.02	0.00	0.01	0.02	0.01
96	<i>Horsfieldia tomentosa</i>	0.0013	0.02	0.00	0.01	0.02	0.01
97	<i>Protium serratum</i>	0.0008	0.01	0.00	0.01	0.01	0.00
98	<i>Pavetta tomentosa</i>	0.0007	0.01	0.00	0.01	0.01	0.00
99	<i>Celastrus paniculata</i>	0.0007	0.01	0.00	0.01	0.01	0.00
100	<i>Melastoma malabathricum</i>	0.0006	0.01	0.00	0.01	0.01	0.00
101	<i>Gmelina philippensis</i>	0.0005	0.01	0.00	0.00	0.01	0.00
102	<i>Cinnamomum porrectum</i>	0.0004	0.00	0.00	0.00	0.01	0.00
103	<i>Eurya acuminata</i>	0.0003	0.00	0.00	0.00	0.00	0.00
Total		99.34	1,100.83	154.22	752.99	1,601.69	359.02

Appendix Table 2-3 Carbon and nutrient storages of tree species in the climax montane forest.

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
1	<i>Quercus eumorpha</i>	24.9777	273.259	38.118	186.262	398.286	87.299
2	<i>Mastixia euonymoides</i>	23.2377	253.298	34.842	171.660	371.228	79.828
3	<i>Calophyllum polyanthum</i>	15.0834	164.964	22.883	112.216	240.783	52.508
4	<i>Manglietia garrettii</i>	14.4522	158.285	21.149	106.338	232.431	49.434
5	<i>Nyssa javanica</i>	10.5366	115.098	15.867	78.104	168.338	36.440
6	<i>Persea</i> sp.	6.2326	68.510	9.451	46.574	99.738	21.907
7	<i>Lindera metcalifiana</i>	4.9292	54.607	7.190	36.610	79.763	17.216
8	<i>Cryptocarya densiflora</i>	4.2951	47.779	6.302	32.083	69.571	15.172
9	<i>Taremma disperma</i>	3.8844	43.047	5.796	29.080	62.598	13.746
10	<i>Quercus brevicalyx</i>	3.8692	42.400	5.936	28.949	61.686	13.607
11	<i>Chionanthus ramiflorus</i>	3.4455	37.840	5.220	25.718	55.122	12.083
12	<i>Syzygium tetragonu</i>	2.9349	32.400	4.432	21.985	47.107	10.378
13	<i>Drypetes</i> sp.	2.7930	30.616	4.206	20.770	44.693	9.726
14	<i>Mallotus khasianus</i>	2.7274	31.005	3.977	20.736	44.729	10.014
15	<i>Daphniphyllum</i>	2.6473	29.363	3.819	19.611	42.950	9.212
16	<i>Lauraceae</i> sp.	2.6172	28.527	3.962	19.397	41.732	9.040
17	<i>Syzygium angkae</i>	2.4840	27.826	3.681	18.735	40.302	8.942
18	<i>Heynea trijuga</i>	2.4199	27.026	3.581	18.192	39.220	8.654
19	<i>Symplocos macrophylla</i>	2.3783	26.767	3.381	17.770	38.976	8.452
20	<i>Elaeocarpus lanceifolius</i>	2.2698	25.037	3.315	16.799	36.641	7.866
21	<i>Aidia yunnanensis</i>	2.2238	24.801	3.313	16.736	35.962	7.961
22	<i>Polyosma integrifolia</i>	2.1244	23.676	3.074	15.822	34.531	7.475
23	<i>Acer laurinum</i>	2.1114	23.304	3.123	15.702	34.014	7.377
24	<i>Cinnamomum bejolghota</i>	2.0289	22.483	2.969	15.089	32.816	7.103
25	<i>Lithocarpus vestitus</i>	2.0067	22.224	3.029	15.073	32.262	7.138
26	<i>Podocarpus neriifolius</i>	1.9904	21.796	2.933	14.677	31.967	6.832
27	<i>Castanopsis calathiformis</i>	1.8978	21.417	2.658	14.146	31.231	6.727
28	<i>Lithocarpus echinops</i>	1.8828	20.761	2.832	14.069	30.223	6.627
29	<i>Cryptocarya</i> cf. <i>calcicola</i>	1.8295	20.168	2.773	13.705	29.324	6.465
30	<i>Castanopsis purpurea</i>	1.8281	20.156	2.740	13.643	29.368	6.421
31	<i>Litsea subcoriacea</i>	1.5080	16.647	2.243	11.237	24.273	5.287
32	<i>Toona ciliata</i>	1.4997	16.487	2.207	11.094	24.137	5.185
33	<i>Sarcosperma arboreum</i>	1.4972	16.494	2.162	11.026	24.204	5.143
34	<i>Phoebe macrocarpa</i>	1.4918	16.365	2.233	11.079	23.906	5.185
35	<i>Cordia</i> cf. <i>cochinchinensis</i>	1.4325	15.657	2.129	10.576	22.950	4.923
36	<i>Castanopsis acuminatissima</i>	1.2533	13.770	1.884	9.333	20.085	4.379
37	<i>Betula alnoides</i>	1.1688	12.769	1.775	8.690	18.642	4.062
38	<i>Rapanea yunnaensis</i>	1.0571	11.830	1.580	7.988	17.117	3.816
39	<i>Carallia brachiata</i>	0.9893	10.871	1.497	7.384	15.834	3.470
40	<i>Camellia oleifera</i>	0.8722	9.857	1.283	6.615	14.237	3.181
41	<i>Ostodes paniculata</i>	0.8551	9.616	1.178	6.321	14.085	2.985
42	<i>Eurya nitida</i>	0.8305	9.537	1.194	6.344	13.728	3.087
43	<i>Capparis</i> cf. <i>assamica</i>	0.8250	9.087	1.240	6.157	13.239	2.896
44	<i>Diospyros glandulosa</i>	0.7996	8.757	1.196	5.926	12.806	2.768
45	<i>Litsea yunnanensis</i>	0.7332	8.204	1.034	5.435	11.997	2.565
46	<i>Lithocarpus aggregatus</i>	0.7176	7.963	1.068	5.374	11.578	2.543
47	Unknown	0.7109	7.880	1.048	5.301	11.487	2.500
48	<i>Drypetes indica</i>	0.6628	7.446	0.970	4.992	10.794	2.384
49	<i>Symplocos henschelii</i>	0.6624	7.284	0.973	4.898	10.667	2.288
50	<i>Artocarpus</i> cf. <i>lacucha</i>	0.6236	6.905	0.895	4.604	10.119	2.156
51	<i>Neolitsea zeylanica</i>	0.5776	6.395	0.863	4.323	9.303	2.042
52	<i>Engelhardia spicata</i>	0.5743	6.311	0.826	4.214	9.280	1.959
53	<i>Platea latifolia</i>	0.5702	6.302	0.846	4.251	9.186	2.002
54	<i>Elaeocarpus petiolaris</i>	0.5699	6.348	0.807	4.213	9.297	1.980
55	<i>Litsea pedunculata</i>	0.5061	5.671	0.725	3.775	8.265	1.789
56	<i>Ficus hirta</i>	0.5014	5.550	0.711	3.686	8.152	1.722
57	<i>Pyrenaria garrettiana</i>	0.4521	5.013	0.656	3.355	7.325	1.578
58	<i>Horsfieldia</i> sp.	0.4090	4.560	0.589	3.042	6.656	1.436
59	<i>Actinodaphne</i> sp.	0.2918	3.274	0.432	2.203	4.740	1.053
60	<i>Ilex longicaudata</i>	0.2801	3.174	0.392	2.095	4.619	1.000
61	<i>Macaranga denticulata</i>	0.2656	2.992	0.352	1.943	4.407	0.912

Appendix Table 2-3 (Continued)

No	Species	Carbon (Mg.ha ⁻¹)	Nitrogen (kg.ha ⁻¹)	Phosphorus (kg.ha ⁻¹)	Potassium (kg.ha ⁻¹)	Calcium (kg.ha ⁻¹)	Magnesium (kg.ha ⁻¹)
62	<i>Cinnamomum cf. soeengii</i>	0.2597	2.917	0.365	1.930	4.260	0.914
63	<i>Elaeocarpus braceanus</i>	0.2421	2.682	0.351	1.794	3.921	0.843
64	<i>Euodia triphylla</i>	0.2323	2.849	0.357	1.923	3.934	1.005
65	<i>Prunus wallichii</i>	0.2217	2.510	0.323	1.679	3.628	0.807
66	<i>Litsea cubeba</i>	0.2090	2.364	0.299	1.571	3.431	0.752
67	<i>Euonymus colonoides</i>	0.2080	2.363	0.295	1.566	3.426	0.752
68	<i>Pterospermum grandiflorum</i>	0.1864	2.064	0.273	1.386	3.012	0.652
69	<i>Prunus phaeosticta</i>	0.1814	2.052	0.269	1.381	2.957	0.666
70	<i>Sterculia sp.</i>	0.1572	1.747	0.229	1.171	2.547	0.553
71	<i>Gomphandra tetrandra</i>	0.1523	1.726	0.218	1.148	2.501	0.551
72	<i>Nothapodytes cf. obscura</i>	0.1466	1.656	0.211	1.103	2.403	0.528
73	<i>Psychotria symplocifolia</i>	0.1180	1.443	0.174	0.963	2.009	0.499
74	<i>Ardisia rubro-glandulosa</i>	0.1160	1.312	0.166	0.872	1.904	0.417
75	<i>Litsea beusekomii</i>	0.1114	1.327	0.156	0.874	1.886	0.439
76	<i>Schoepfia fragrans</i>	0.0935	1.055	0.132	0.699	1.536	0.333
77	<i>Litsea lancifolia</i>	0.0846	0.987	0.114	0.643	1.426	0.314
78	<i>Beilschmiedia glauca</i>	0.0753	0.860	0.106	0.568	1.245	0.274
79	<i>Camellia taliensis</i>	0.0729	0.838	0.104	0.555	1.209	0.270
80	<i>Turpinia nepalensis</i>	0.0704	0.795	0.101	0.529	1.154	0.252
81	<i>Euonymus sp.1</i>	0.0664	0.753	0.094	0.500	1.093	0.240
82	<i>Dysoxylum sp.1</i>	0.0478	0.551	0.067	0.364	0.794	0.177
83	<i>Lasianthus hookerii</i>	0.0418	0.518	0.061	0.344	0.718	0.181
84	<i>Olea cf. salicifolia</i>	0.0404	0.453	0.058	0.302	0.660	0.144
85	<i>Ixora cf. kerrii</i>	0.0390	0.478	0.056	0.317	0.667	0.164
86	<i>Ardisia attenuata</i>	0.0373	0.460	0.054	0.305	0.640	0.159
87	<i>Ficus sp.1</i>	0.0338	0.382	0.048	0.254	0.555	0.122
88	<i>Lasianthus indorus</i>	0.0295	0.368	0.043	0.245	0.508	0.129
89	<i>Psychotria densa</i>	0.0276	0.353	0.042	0.236	0.480	0.128
90	<i>Symplocos hookeri</i>	0.0226	0.268	0.031	0.176	0.383	0.087
91	<i>Capparis sabiaefolia</i>	0.0192	0.230	0.027	0.151	0.326	0.076
92	<i>Litsea cf. membranifolia</i>	0.0167	0.192	0.024	0.127	0.278	0.062
93	<i>Archidendron clypearia</i>	0.0150	0.173	0.021	0.114	0.249	0.055
94	<i>Ardisia corymbifera</i>	0.0148	0.191	0.023	0.128	0.259	0.070
95	<i>Ardisia virens</i>	0.0123	0.153	0.017	0.101	0.213	0.053
96	<i>Dysoxylum sp.2</i>	0.0122	0.145	0.016	0.094	0.208	0.047
97	<i>Beilschmiedia purpurascens</i>	0.0092	0.107	0.013	0.070	0.154	0.034
98	<i>Antidesma sootepense</i>	0.0077	0.097	0.011	0.064	0.135	0.034
99	<i>Zanthoxylum rhesta</i>	0.0053	0.063	0.007	0.041	0.090	0.020
100	<i>Myrica esculenta</i>	0.0044	0.052	0.006	0.034	0.074	0.017
101	<i>Meliosma sp.</i>	0.0034	0.040	0.005	0.026	0.057	0.013
102	<i>Psychotria calocarpa</i>	0.0029	0.038	0.004	0.025	0.052	0.014
103	<i>Debregeasia longifolia</i>	0.0029	0.035	0.004	0.023	0.050	0.012
104	<i>Strobilanthes aff. mucronato-productus</i>	0.0025	0.032	0.004	0.021	0.044	0.011
105	<i>Diospyros frutescens</i>	0.0021	0.025	0.003	0.016	0.035	0.008
106	<i>Annonaceae sp.</i>	0.0019	0.024	0.003	0.015	0.033	0.008
107	<i>Gomphostemma arbusculum</i>	0.0017	0.022	0.002	0.014	0.029	0.008
108	<i>Daphne composita</i>	0.0014	0.018	0.002	0.012	0.025	0.006
109	<i>Maytenus sp.</i>	0.0013	0.016	0.002	0.010	0.023	0.005
110	<i>Lasianthus sikkimensis</i>	0.0010	0.012	0.001	0.008	0.017	0.004
111	<i>Broussonetia kazinoki</i>	0.0009	0.011	0.001	0.007	0.016	0.004
112	<i>Polygala arillata</i>	0.0009	0.011	0.001	0.007	0.015	0.004
113	<i>Viburnum punctatum</i>	0.0008	0.010	0.001	0.007	0.014	0.003
114	<i>Prunus sp.2</i>	0.0008	0.010	0.001	0.006	0.014	0.003
115	<i>Pittosporum chatterjeeanum</i>	0.0007	0.009	0.001	0.006	0.013	0.003
116	<i>Baliospermum micranthum</i>	0.0006	0.008	0.001	0.005	0.011	0.003
117	<i>Miliusa sp.</i>	0.0002	0.003	0.000	0.002	0.004	0.001
118	<i>Desmodium multiflorum</i>	0.0002	0.002	0.000	0.002	0.003	0.001
119	<i>Lasianthus saxorum</i>	0.0002	0.002	0.000	0.002	0.003	0.001
120	<i>Lycianthes neesiana</i>	0.0001	0.001	0.000	0.001	0.002	0.000
121	<i>Mycetia rivicola</i>	0.0001	0.001	0.000	0.001	0.002	0.000
122	<i>Strobilanthes sp.1</i>	0.0001	0.001	0.000	0.001	0.001	0.000
	Total	186.80	2,057.32	278.54	1,390.26	3,002.04	652.86

APPENDIX C

Soil Profile Description in Topographic Stand of Sampling

Appendix 3.1 Soil profile description in the adjacent fragmented forest.

Pedon 1

I Information on the Site

Profile symbol	: Pedon 1
Soil name	: Boakaew Samoeng series 1 (tentative)
Classification	: Typic Palehumult
Date of examination	: June 05, 2009
Described by	: Niwat Anongrak, Soontorn Khamyong, Ampai Pornleesangsuwan, Somchai Nongnuang, Tapararat Seeloy-ounkeaw
Location	: Approximately 82 km north-northwest from Chiang Mai City. Samoeng District. Chiang Mai Province. Grid Reference: 2087485 N, 0450005 E (Sheet: 4746 IV)
Elevation	: 1,414 m (MSL)
Land form	
1. Physiographic position	: On straight slope
2. Surrounding land form	: High mountainous
3. Slope on which profile site	: Steep (26%), S 20 ⁰ W aspect
Vegetation and land use	: Under lower montane forest. Land is used for watershed forest (protected forest). Dominant tree is <i>Pinus kesiya</i>
Annual rainfall	: Approximately 1,894 mm/yr
Mean temperature	: Approximately 20.9 °C
Other	: Nil

II General Information on the Soil

Parent material	: Derived “ <i>in situ</i> ” from granitic rocks in Triassic period
Drainage	: Well drained
Moisture condition in profile	: Moist throughout
Depth of ground water table	: Nil
Surface stones and rock outcrops	: No stones and no rocks
Evidence of erosion	: Moderate sheet erosion
Human influence	: Nil

III Profile Description :

Horizon	Depth (cm)	Description
A	0-8	Very dark gray (2.5Y3/1) moist; sandy loam; moderate fine and weak medium granular structure; many fine and medium, few coarse pores; common fine, medium and coarse roots; slightly acid (pH 6.13); clear and smooth boundary to AB
AB	8-19	Dark yellowish brown (10YR3/6) moist; sandy clay loam; moderate fine and weak medium subangular blocky structure; common fine and medium pores; common fine, medium and coarse roots; moderately acid (pH 5.86); clear and smooth boundary to Bt1
Bt1	19-31	Dark yellowish brown (10YR4/6) moist; sandy clay loam; moderate medium and strong medium subangular blocky structure; common fine and medium pores; few fine and medium roots; strongly acid (pH 5.51); clear and smooth boundary to Bt2
Bt2	31-47	Brown (7.5YR4/4) moist; sandy clay loam; strong medium subangular blocky structure; few fine and medium pores; few fine, common medium and few coarse roots; moderately acid (pH 5.88); clear and smooth boundary to Bt3
Bt3	47-73	Yellowish red (5YR5/6) moist; loam; strong fine and medium subangular blocky structure; few fine and medium pores; few fine and medium roots; moderately acid (pH 6.05); clear and smooth boundary to Bt4
Bt4	73-102	Red (2.5YR5/6) moist; loam; strong fine and medium subangular blocky structure; few fine and medium pores; few fine and medium roots; moderately acid (pH 6.07); clear and smooth boundary to Bt5
Bt5	102-132	Red (2.5RY5/6) moist; loam; strong fine and medium subangular blocky structure; few fine and medium pores; few fine and medium roots; moderately acid (pH 5.96); clear and smooth boundary to BC1
BC1	132-167	Reddish yellow (5YR6/6) moist; sandy loam; strong fine and medium subangular blocky structure; few very fine and fine pores; few fine and medium roots; few rounded boulders of granitic rocks; moderately acid (pH 6.01); clear and smooth boundary to BC2
BC2	167-192	Reddish yellow (5YR6/6) moist; sandy loam; strong fine and medium subangular blocky structure; few very fine and fine pores; few fine roots; few rounded stones of granitic rocks; moderately acid (pH 6.01); clear and smooth boundary to BC3
BC3	192-212+	Light red (2.5YR7/8) moist; sandy loam; strong fine and medium subangular blocky structure; few very fine and fine pores; few fine roots; few rounded stones of granitic rocks; moderately acid (pH 6.01)

Pedon 2**I Information on the Site**

- Profile symbol** : Pedon 2
Soil name : Boakaew Samoeng series 2 (tentative)
Classification : Typic Palehumult
Date of examination : May 16, 2010
Described by : Niwat Anongrak, Soontorn Khamyong,
 Ampai Pornleesangsuwan, Somchai Nongnuang,
 Taparat Seeloy-ounkeaw
Location : Approximately 82 km north-northwest from Chiang Mai
 City. Samoeng District. Chiang Mai Province.
 Grid Reference: 2090586 N, 0447589 E (Sheet: 4746 IV)
Elevation : 1,261 m (MSL)
Land form
 1. **Physiographic position** : On straight slope
 2. **Surrounding land form** : High mountainous
 3. **Slope on which profile site** : Steep (38%), E 10⁰ W aspect
Vegetation and land use : Under lower montane forest. Land is used for
 watershed forest (protected area). Dominant trees are
Castanopsis acuminatissima, *Quercus brandisiana*
Annual rainfall : Approximately 1,894 mm/yr
Mean temperature : Approximately 20.9 °C
Other : Nil

II General Information on the Soil

- Parent material** : Derived “*in situ*” from granitic rocks in Triassic
 period
Drainage : Well drained
Moisture condition in profile : Moist throughout
Depth of ground water table : Nil
Surface stones and rock outcrops : No stones and no rocks
Evidence of erosion : Moderate sheet erosion
Human influence : Some disturbed by human through tree cutting

III Profile Description :

Horizon	Depth (cm)	Description
A	0-10/17	Dark grayish brown (10YR4/2) moist; gravelly sandy clay loam; strong fine and medium subangular blocky structure; common fine and few medium pores; common and many fine, few medium roots; strongly acid (pH 5.30); clear and smooth boundary to BA
BA	10/17-33	Yellowish red (5YR4/6) moist; very gravelly clay; strong fine subangular blocky structure; common fine pores; few fine and medium roots; moderately acid (pH 5.75); clear and smooth boundary to Bt1

Bt1	33-59	Red (2.5YR4/8) moist; gravelly clay; strong fine and moderate medium subangular blocky structure; few fine and medium pores; few coarse roots; moderately acid (pH 5.77); clear and smooth boundary to Bt2
Bt2	59-104	Red (2.5YR5/8) moist; gravelly clay; moderate medium subangular blocky structure; few fine and medium pores; few medium roots; moderately acid (pH 5.88); clear and smooth boundary to Bt3
Bt3	104-140	Red (2.5YR5/8) moist; gravelly clay loam; moderate medium subangular blocky structure; few fine and medium pores; few medium roots; very strongly acid (pH 4.82); clear and smooth boundary to Bt4
BC1	140-162	Brownish yellow (10YR6/6) moist; gravelly clay loam; moderate medium subangular blocky structure; few fine and medium pores; no roots; very strongly acid (pH 5.00); gradual and smooth boundary to BC1
BC2	162-199	Yellow (10YR7/6) moist; gravelly clay loam; moderate medium subangular blocky structure; few fine and medium pores; no roots; very strongly acid (pH 5.00); gradual and smooth boundary to BC2
BC3	199-225+	Pale yellow (2.5Y8/4) moist; gravelly clay loam; moderate medium subangular blocky structure; few fine and medium pores; no roots; very strongly acid (pH 5.00)

Pedon 3**I Information on the Site**

- Profile symbol** : Pedon 3
Soil name : Boakaew Samoeng series 3 (tentative)
Classification : Typic Paleudalf
Date of examination : June 06, 2009
Described by : Niwat Anongrak, Soontorn Khamyong,
 Ampai Pornleesangsuwan, Somchai Nongnuang,
 Taparat Seeloy-ounkeaw
Location : Approximately 82 km north-northwest from Chiang Mai
 City. Samoeng District. Chiang Mai Province.
 Grid Reference: 2081200 N, 0451579 E (Sheet: 4746 IV)
Elevation : 1,427 m (MSL)
Land form
 1. **Physiographic position** : On straight slope
 2. **Surrounding land form** : High mountainous
 3. **Slope on which profile site** : Steep (42%), S 25° W aspect
Vegetation and land use : Under lower montane forest. Land is used for
 watershed forest (protected area). Dominant tree is
Castanopsis acuminatissima
Annual rainfall : Approximately 1,894 mm/yr
Mean temperature : Approximately 20.9 °C
Other : Nil

II General Information on the Soil

- Parent material** : Derived “*in situ*” from granitic rocks in Triassic period
Drainage : Well drained
Moisture condition in profile : Moist throughout
Depth of ground water table : Nil
Surface stones and rock outcrops : No stones and no rocks
Evidence of erosion : Moderate sheet erosion
Human influence : Nil

III Profile Description :

Horizon	Depth (cm)	Description
A1	0-10	Very dark gray (5YR3/1) moist; gravelly sandy loam; moderate fine and medium granular structure; many fine, medium and common coarse pores; comon fine and medium roots; strongly acid (pH 5.55); clear and smooth boundary to A2
A2	10-21	Very dark gray (5YR3/1) moist; sandy loam; moderate fine and medium granular structure; common fine, medium and few coarse pores; comon fine and medium roots; moderately acid (pH 5.83); abrupt and smooth boundary to AB
	21-34	Very dark gray (5YR3/1) moist; sandy clay loam; weak

AB		medium moderate fine and subangular blocky structure; common fine and medium pores; few fine and medium roots; moderately acid (pH 6.03); clear and smooth boundary to Bt1
Bt1	34-62	Dark reddish brown (2.5YR2.5/3) moist; sandy clay loam; weak fine and medium subangular blocky structure; few fine and medium pores; few fine and medium roots; strongly acid (pH 5.58); clear and smooth boundary to Bt2
Bt2	62-90	Dark reddish brown (2.5YR3/3) moist; sandy clay loam; strong fine and medium subangular blocky structure; few fine and medium pores; few fine, medium and coarse roots; moderately acid (pH 5.86); clear and smooth boundary to Bt3
Bt3	90-123	Dark red (2.5YR3/6) moist; sandy clay loam; strong fine and medium subangular blocky structure; few fine and medium pores; few fine, medium and coarse roots; moderately acid (pH 5.86); clear and smooth boundary to Bt4
Bt4	123-159	Red (10R4/6) moist; gravelly sandy clay loam; strong fine and medium subangular blocky structure; few fine and medium pores; few fine and medium roots; moderately acid (pH 5.73); clear and smooth boundary to Bt5
Bt5	159-192	Weak red (10R4/4) moist; gravelly sandy clay loam; strong fine and medium subangular blocky structure; few fine and medium pores; few fine and medium roots; strongly acid (pH 5.57); gradual and smooth boundary to Bt6
Bt6	192-210+	Weak red (10R4/4) moist; gravelly sandy clay loam; strong fine and medium subangular blocky structure; few fine and medium pores; few fine and medium roots; strongly acid (pH 5.57)

Pedon 4**I Information on the Site**

- Profile symbol** : Pedon 4
Soil name : Boakaew Samoeng series 4 (tentative)
Classification : Typic Palehumult
Date of examination : May 07, 2009
Described by : Niwat Anongrak, Soontorn Khamyong,
 Ampai Pornleesangsuwan, Somchai Nongnuang,
 Taparat Seeloy-ounkeaw
Location : Approximately 82 km north-northwest from Chiang Mai
 City. Samoeng District. Chiang Mai Province.
 Grid Reference: 2082803 N, 0450647 E (Sheet: 4746 IV)
Elevation : 1,571 m (MSL)
Land form
1. Physiographic position : On straight slope
2. Surrounding land form : High mountainous
3. Slope on which profile site : Very steep (49%), S 75° W aspect
Vegetation and land use : Under lower montane forest. Land is used for
 watershed forest (protected area). Dominant tree is
Castanopsis diversifolia
Annual rainfall : Approximately 1,894 mm/yr
Mean temperature : Approximately 20.9 °C
Other : Nil

II General Information on the Soil

- Parent material** : Derived “*in situ*” from granitic rocks in Triassic period
Drainage : Well drained and somewhat excessively drained
Moisture condition in profile : Moist throughout
Depth of ground water table : Nil
Surface stones and rock outcrops : No stones and no rocks
Evidence of erosion : Moderate sheet erosion
Human influence : Nil

III Profile Description :

Horizon	Depth (cm)	Description
A1	0-5	Black (5YR2.5/1) and dark gray (5YR4/1) moist; sandy loam; moderate fine subangular blocky structure; many fine, medium and common coarse pores; many very fine, common fine, medium and few coarse roots; strongly acid (pH 5.25); clear and smooth boundary to A2
A2	5-14	Black (5YR2.5/1) moist; gravelly sandy clay loam; moderate fine and medium subangular blocky structure; common fine, medium and few coarse pores; many very fine, common fine, medium and few coarse roots; strongly acid (pH 5.14); clear and smooth boundary to AB

AB	14-34	Very dark gray (5YR3/1) moist; gravelly sandy clay loam; strong fine and medium subangular blocky structure; common fine and medium pores; common fine and medium roots; very strongly acid (pH 5.01); clear and smooth boundary to Bt1
Bt1	34-64	Dark reddish brown (5YR3/2) moist; sandy clay loam; strong fine and medium subangular blocky structure; few fine and medium pores; common fine and few medium roots; strongly acid (pH 5.18); clear and smooth boundary to Bt2
Bt2	64-86	Dark brown (7.5YR3/3) moist; clay loam; strong medium subangular blocky structure; few fine and medium pores; few fine and medium roots; strongly acid (pH 5.50); clear and smooth boundary to Bt3
Bt3	86-102	Reddish brown (2.5YR4/4) moist; clay loam; strong medium subangular blocky structure; few fine and medium pores; few fine and coarse roots; strongly acid (pH 5.56); clear and smooth boundary to Bt4
Bt4	102-131	Reddish brown (2.5YR4/4) moist; clay loam; strong medium subangular blocky structure; few fine and medium pores; few fine roots; moderately acid (pH 5.67); gradual and smooth boundary to BC1
BC1	131-164	Yellowish red (5YR5/8) moist; loam; strong medium subangular blocky structure; few fine and medium pores; few fine roots; strongly acid (pH 5.47); gradual and smooth boundary to BC2
BC2	164-191	Reddish brown (5YR5/3) moist; loam; strong medium subangular blocky structure; few fine and medium pores; few fine roots; strongly acid (pH 5.47); gradual and smooth boundary to BC3
BC3	191-210+	Pinkish gray (5YR7/2) moist; gravelly loam; strong medium subangular blocky structure; few fine and medium pores; few fine roots; strongly acid (pH 5.47)

Pedon 5**I Information on the Site**

- Profile symbol** : Pedon 5
Soil name : Boakaew Samoeng series 5 (tentative)
Classification : Typic Palehumult
Date of examination : May 08, 2009
Described by : Niwat Anongrak, Soontorn Khamyong,
 Ampai Pornleesangsuwan, Somchai Nongnuang,
 Taparat Seeloy-ounkeaw
Location : Approximately 82 km north-northwest from Chiang Mai
 City. Samoeng District. Chiang Mai Province.
 Grid Reference: 2083478 N, 0450800 E (Sheet: 4746 IV)
Elevation : 1,546 m (MSL)
Land form
1. Physiographic position : On convex slope near ridge
2. Surrounding land form : High mountainous
3. Slope on which profile site : Steep (32%), N 20⁰ E aspect
Vegetation and land use : Under lower montane forest. Land is used for
 watershed forest (protected area). Dominant tree is
Schima wallichii
Annual rainfall : Approximately 1,894 mm/yr
Mean temperature : Approximately 20.9 °C
Other : Nil

II General Information on the Soil

- Parent material** : Derived “*in situ*” from granitic rocks in Triassic period
Drainage : Well drained and somewhat excessively drained
Moisture condition in profile : Moist throughout
Depth of ground water table : Nil
Surface stones and rock outcrops : No stones and no rocks
Evidence of erosion : Moderate to severe sheet erosion
Human influence : Nil

III Profile Description :

Horizon	Depth (cm)	Description
A1	0-5	Black (5YR2.5/1) moist; sandy loam; moderate fine granular structure; many fine, medium and few coarse pores; many very fine, many fine, common medium and few coarse roots; strongly acid (pH 5.26); clear and smooth boundary to A2
A2	5-20	Very dark gray (5YR3/1) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine, medium and few coarse pores; many fine, common fine, medium and few coarse roots; strongly acid (pH 5.56); clear and smooth boundary to AB

AB	20-36	Very dark gray (5YR3/1) moist; sandy clay loam; strong fine and medium subangular blocky structure; common fine and medium pores; common fine, medium and few coarse roots; moderately acid (pH 5.65); clear and smooth boundary to Bt1
Bt1	36-50	Reddish brown (5YR4/4) moist; sandy clay loam; strong fine and medium subangular blocky structure; few fine and medium pores; few fine, medium and coarse roots; moderately acid (pH 5.61); clear and smooth boundary to Bt2
Bt2	50-66	Yellowish red (5YR4/6) moist; clay loam; strong medium subangular blocky structure; few fine and medium pores; few fine, medium and coarse roots; strongly acid (pH 5.46); clear and smooth boundary to Bt3
Bt3	66-92	Yellowish red (5YR4/6) moist; sandy clay loam; strong medium subangular blocky structure; few fine and medium pores; few fine, medium and coarse roots; few stone rounded stones; strongly acid (pH 5.52); clear and smooth boundary to Bt4
Bt4	92-115/124	Yellowish red (5YR4/6) moist; loam; strong medium subangular blocky structure; few fine and medium pores; few fine and medium roots; moderately acid (pH 5.64); wavy and smooth boundary to BC1
BC1	115/124-145	Pinkish gray (5YR6/2) moist; loam; strong medium subangular blocky structure; few fine and medium pores; few fine and medium roots; strongly acid (pH 5.52); clear and smooth boundary to BC2
BC2	145-185	Pinkish gray (5YR6/2) moist; loam; strong medium subangular blocky structure; few fine and medium pores; few fine and medium roots; slightly acid (pH 6.11); gradual and smooth boundary to BC3
BC3	185-210+	Pinkish gray (7.5YR5/2) moist; gravelly loam; strong medium subangular blocky structure; few fine and medium pores; no roots; slightly acid (pH 6.11)

Appendix 3.2 Soil profile description in the climax montane forest.

Pedon 6

I Information on the Site

Profile symbol	: Pedon 6
Soil name	: Doi Inthanon National Park series 1, DINP 1, (tentative)
Classification	: Typic Palehumult
Date of examination	: July 04, 2012
Described by	: Niwat Anongrak, Soontorn Khamyong, Kanitta Satienperakul
Location	: Approximately 50 km to the south-southwest of Chiang Mai City. Chom Thong District. Chiang Mai Province. Grid Reference: 2048224 N, 0446681 E (Sheet: 4646 II)
Elevation	: 1,720 m (MSL)
Land form	
1. Physiographic position	: On convex slope
2. Surrounding land form	: High mountainous
3. Slope on which profile site	: Steep (26%), S 30 ⁰ W aspect
Vegetation and land use	: Under Hill Evergreen forest. Land is used for watershed forest (protected area). Dominant tree is <i>Mastixia euonymoides</i> Prain
Annual rainfall	: Approximately 1,908 mm/yr
Mean temperature	: Approximately 20.0 ⁰ C
Other	: Nil

II General Information on the Soil

Parent material	: Derived “ <i>in situ</i> ” from gneissic granite rocks in Carboniferous period
Drainage	: Well drained
Moisture condition in profile	: Moist throughout
Depth of ground water table	: Nil
Surface stones and rock outcrops	: No stones and no rocks
Evidence of erosion	: Slight sheet erosion
Human influence	: Nil

III Profile Description

Horizon	Depth (cm)	Description
A1	0-5	Very dark brown (10YR 2/2) moist; sandy loam; weak to moderate fine to medium granular structure; common very fine and fine pores; many fine, medium and few very coarse roots; extremely acid (pH 4.38); clear and smooth boundary to A2
A2	5-9/11	Dark brown (7.5YR 3/3) moist; sandy loam; moderately weak fine to medium granular structure; common fine and

		medium pores; many fine, common medium and common very coarse roots; extremely acid (pH 4.12); clear and smooth boundary to AB
AB	9/11-25/27	Dark brown (7.5YR 3/4) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; common fine, medium and very coarse roots; very strongly acid (pH 4.74); gradual and smooth boundary to Bt1
Bt1	25/27-58	Yellowish red (5YR 4/6) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; common fine and few coarse roots; few small angular stones (8-10 cm) of fresh granite; very strongly acid (pH 5.03); clear and smooth boundary to Bt2
Bt2	58-84/88	Yellowish red (5YR 5/8), few medium distinct reddish yellow (7.5YR 7/8) mottles, moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; few fine and medium roots; strongly acid (pH 5.08); gradual and smooth boundary to Bt3
Bt3	84/88-114/122	Yellowish red (5YR 4/6) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; few fine roots; strongly acid (pH 5.10); gradual and wavy boundary to Bt4
Bt4	114/122-152/159	Reddish yellow 40% (7.5YR 6/8) and brownish yellow 60% (10YR 6/8) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; few fine roots; strongly acid (pH 5.17); clear and wavy boundary to Bt5
Bt5	152/159-174/195	Yellowish Red (5YR4/6), few medium distinct brownish yellow (10YR 6/8) and dusky red (10R 3/4) mottles, moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; few fine roots; strongly acid (pH 5.36); clear and wavy boundary to CB
CB	195-220+	Red (10R 4/6), moist; sandy loam; moderately weathered granitic rocks 70%

Pedon 7**I Information on the Site**

Profile symbol	: Pedon 7
Soil name	: Doi Inthanon National Park series 2, DINP 2 (tentative)
Classification	: Typic Palehumult
Date of examination	: July 03, 2012
Described by	: Niwat Anongrak, Soontorn Khamyong, Kanitta Satienerakul
Location	: Approximately 50 km to the south-southwest of Chiang Mai City. Chom Thong District. Chiang Mai Province.
Elevation	: 1,674 m (MSL)
Land form	
1. Physiographic position	: On straight slope
2. Surrounding land form	: High mountainous
3. Slope on which profile site	: Steep (38%), S 10 ⁰ W aspect
Vegetation and land use	: Under Hill Evergreen forest. Land is used for watershed forest (protected area). Dominant tree is <i>Manglietia garrettii Craib</i>
Annual rainfall	: Approximately 1,908 mm/yr
Mean temperature	: Approximately 20.0 ⁰ C
Other	: Nil

II General Information on the Soil

Parent material	: Derived “ <i>in situ</i> ” from gneissic granite rocks in Carboniferous period
Drainage	: Well drained
Moisture condition in profile	: Moist throughout
Depth of ground water table	: Nil
Surface stones and rock outcrops	: No stones and no rocks
Evidence of erosion	: slight sheet erosion
Human influence	: Nil

III Profile Description :

Horizon	Depth (cm)	Description
A1	0-5/8	Very dark brown (7.5YR 2.5/2) moist; sandy loam; weak to moderate fine to medium granular structure; common very fine and fine pores; many fine and medium roots; very strongly acid (pH 4.46); clear and smooth boundary to A2
A2	5/8-15/19	Dark brown (7.5YR 3/3) moist; sandy loam; moderately weak fine to medium granular structure; common fine pores; many fine and common medium roots; extremely acid (pH 4.44); clear and smooth boundary to AB
AB	15/19-30/33	Dark reddish brown 60% (5YR 3/4) and Yellowish red 40% (5YR 4/6) moist; sandy clay loam; moderate fine and

		medium subangular blocky structure; common fine and medium pores; common fine, medium and few coarse roots; very strongly acid (pH 4.57); gradual and smooth boundary to Bt1
Bt1	30/33-54/58	Yellowish red (5YR 4/6) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; common fine and very coarse roots; very strongly acid (pH 4.86); clear and smooth boundary to Bt2
Bt2	54/58-67/76	Yellowish red (5YR 5/8) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; common fine roots; strongly acid (pH 5.16); clear and wavy boundary to Bt3
Bt3,	67/76-98/103	Strong brown (7.5YR 5/8) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and few very coarse pores; few fine roots; strongly acid (pH 5.20); gradual and smooth boundary to Bt4
Bt4	98/103-130/138	Strong brown (7.5YR5/6) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; few fine roots; strongly acid (pH 5.32); abrupt and smooth boundary to Bt5
Bt5	130/138-171/179	Red (2.5R4/6) moist; sandy clay loam; moderate fine and medium subangular blocky structure; few medium pores; common fine and few medium roots; strongly acid (pH 5.36); gradual and wavy boundary to Bt6
Bt6	171/179-225+	Red (2.5R4/8) moist; sandy loam; moderate fine and medium subangular blocky structure; common fine pores; few coarse roots; strongly acid (pH 5.20)

Pedon 8**I Information on the Site**

Profile symbol	: Pedon 8
Soil name	: Doi Inthanon National Park series 3, DINP 3 (tentative)
Classification	: Typic Palehumult
Date of examination	: July 03, 2012
Described by	: Niwat Anongrak, Soontorn Khamyong, Kanitta Satienerakul
Location	: Approximately 50 km to the south-southwest of Chiang Mai City. Chom Thong District. Chiang Mai Province.
Elevation	: 1,640 m (MSL)
Land form	
1. Physiographic position	: On straight slope
2. Surrounding land form	: High mountainous
3. Slope on which profile site	: Steep (37%), S 20 ⁰ W aspect
Vegetation and land use	: Under Hill Evergreen forest. Land is used for watershed forest (protected area). Dominant tree is <i>Quercus eumorpha</i> Kurz.
Annual rainfall	: Approximately 1,908 mm/yr
Mean temperature	: Approximately 20.0 ⁰ C
Other	: Nil

II General Information on the Soil

Parent material	: Derived " <i>in situ</i> " from gneissic granite rocks in Carboniferous period
Drainage	: Well drained
Moisture condition in profile	: Moist throughout
Depth of ground water table	: Nil
Surface stones and rock outcrops	: No stones and no rocks
Evidence of erosion	: Slight sheet erosion
Human influence	: Nil

III Profile Description :

Horizon	Depth (cm)	Description
A1	0-5	Very dark brown (7.5YR2.5/3) moist; sandy loam; weak to moderate fine to medium granular structure; common very fine and fine pores; common fine, medium and very coarse roots; extremely acid (pH 3.58); clear and smooth boundary to A2
A2	5-10	Dark brown (7.5YR3/4) moist; sandy loam; moderately weak fine to medium granular structure; common fine and few coarse pores; common fine, medium and very coarse roots; extremely acid (pH 3.53); clear and smooth boundary to AB

AB	10-25	Dark reddish brown (5YR3/4) moist; sandy loam; moderate fine and medium subangular blocky structure; common fine and medium pores; common fine and medium roots; extremely acid (pH 4.05); gradual and smooth boundary to Bt1
Bt1	25-40	Yellowish red (5YR4/6) moist; sandy loam; moderate fine and medium subangular blocky structure; common fine and medium pores; common fine, medium and coarse roots; very strongly acid (pH 4.60); gradual and smooth boundary to Bt2
Bt2	40-60	Red (2.5YR4/6) moist; sandy clay loam; moderate fine and medium subangular blocky structure; few fine and medium pores; common fine and medium roots; strongly acid (pH 5.19); gradual and smooth boundary to Bt3
Bt3	60-90	Red (2.5YR4/8) moist; sandy clay loam; moderate fine and medium subangular blocky structure; few fine and medium pores; common fine and few medium roots; moderately acid (pH 5.58); gradual and smooth boundary to Bt4
Bt4	90-130	Red (2.5YR4/6), few medium distinct yellowish red (5YR5/8) mottles, moist; sandy clay loam; moderate fine and medium subangular blocky structure; few fine and medium pores; common fine roots; moderately acid (pH 5.72); diffuse and smooth boundary to Bt5
Bt5	130-180	Red (2.5R4/8) moist; sandy clay loam; moderate fine and medium subangular blocky structure; few fine and medium pores; common fine roots; moderately acid (pH 5.81); diffuse and smooth boundary to Bt6
Bt6	180-220+	Yellowish red (5YR4/6) moist; sandy clay loam; moderate fine and medium subangular blocky structure; common fine and medium pores; common fine and few medium roots; moderately acid (pH 5.71)

APPENDIX D

Appendix 4.1 Standard range of soil bulk density (Modified Kanchanaprasert, 1986)

No	Levels	Range (Mg m ⁻³)
1	very low VL	< 1.0
2	low L	1.0 - 1.2
3	moderately low ML	1.2 - 1.4
4	medium M	1.4 - 1.6
5	moderately high MH	1.6 - 1.8
6	high H	1.8 - 2.0
7	very high VH	> 2.0

Appendix 4.2 Standard range of soil reaction (Land Classification and FAO Project Staff, 1973; Soil Survey Division Staff, 1993)

No	Soil reaction	pH Range
1	ultra acid	< 3.5
2	extremely acid	3.5 - 4.4
3	very strongly acid	4.5 - 5.0
4	strongly acid	5.1 - 5.5
5	moderately acid	5.6 - 6.0
6	slightly acid	6.1 - 6.5
7	neutral	6.6 - 7.3
8	slightly alkaline	7.4 - 7.8
9	moderately alkaline	7.9 - 8.4
10	strongly alkaline	8.5 - 9.0
11	very strongly alkaline	> 9.0

Appendix 4.3 Standard range of soil organic matter contents (Land Classification and FAO Project Staff, 1973; Soil Survey Division Staff, 1993)

No	Levels		Range	
			g.kg ⁻¹	%
1	very low	VL	< 5	< 0.5
2	low	L	5 - 10	0.5 - 1.0
3	moderately low	ML	10 - 15	1.0 - 1.5
4	medium	M	15 - 25	1.5 - 2.5
5	moderately high	MH	25 - 35	2.5 - 3.5
6	high	H	35 - 45	3.5 - 4.5
7	very high	VH	> 45	> 4.5

Appendix 4.4 Standard range of soil carbon contents (Land Classification and FAO Project Staff, 1973; Soil Survey Division Staff, 1993)

No	Levels		Range	
			g.kg ⁻¹	%
1	very low	VL	< 2.90	< 0.29
2	low	L	2.90 - 5.80	0.29 - 0.58
3	moderately low	ML	5.80 - 8.70	0.58 - 0.87
4	medium	M	8.70 - 14.50	0.87 - 1.45
5	moderately high	MH	14.50 - 20.30	1.45 - 2.03
6	high	H	20.30 - 26.10	2.03 - 2.61
7	very high	VH	> 26.10	> 2.61

Note: soil organic matter = % organic carbon x 1.724 (carbon = 58% of soil organic matter)

Appendix 4.5 Standard range of total nitrogen contents (Land Use Planning Division, 1993)

No	Levels		Range	
			g.kg ⁻¹	%
1	very low	VL	< 1.0	< 0.1
2	low	L	1.0 - 2.0	0.1 - 0.2
3	medium	M	2.0 - 5.0	0.2 - 0.5
4	high	H	5.0 - 7.5	0.5 - 0.75
5	very high	VH	> 7.5	> 0.75

Appendix 4.6 Standard range of available phosphorus concentrations (Land Classification and FAO Project Staff, 1973; Soil Survey Division Staff, 1993)

No	Levels		Range	
			mg.kg ⁻¹	%
1	very low	VL	< 3	< 3
2	low	L	3 - 6	3 - 6
3	moderately low	ML	6 - 10	6 - 10
4	medium	M	10 - 15	10 - 15
5	moderately high	MH	15 - 25	15 - 25
6	high	H	25 - 45	25 - 45
7	very high	VH	> 45	> 45

Appendix 4.7 Standard range of extractable potassium concentrations (Land Classification and FAO Project Staff, 1973; Soil Survey Division Staff, 1993)

No	Levels		Range		
			cmol.kg ⁻¹	mg.kg ⁻¹	ppm
1	very low	VL	< 0.2	< 30	< 30
2	low	L	0.2 - 0.3	30 - 60	30 - 60
3	medium	M	0.3 - 0.6	60 - 90	60 - 90
4	high	H	0.6 - 1.2	90 - 120	90 - 120
5	very high	VH	> 1.2	> 120	> 120

Appendix 4.8 Standard range of extractable calcium concentrations (Land Classification and FAO Project Staff, 1973; Soil Survey Division Staff, 1993)

No	Levels		Range		
			cmol.kg ⁻¹	mg.kg ⁻¹	ppm
1	very low	VL	< 2.0	< 400	< 400
2	low	L	2 - 5	400 - 1,000	400 - 1,000
3	medium	M	5 - 10	1,000 - 2,000	1,000 - 2,000
4	high	H	10 - 20	2,000 - 4,000	2,000 - 4,000
5	very high	VH	> 20	> 4,000	> 4,000

Appendix 4.9 Standard range of extractable magnesium concentrations (Land Classification and FAO Project Staff, 1973; Soil Survey Division Staff, 1993)

No	Levels		Range		
			cmol.kg ⁻¹	mg.kg ⁻¹	ppm
1	very low	VL	< 0.3	< 36.45	< 36.45
2	low	L	0.3 - 1.0	36.45 - 121.5	36.45 - 121.5
3	medium	M	1.0 - 3.0	121.5 - 364.5	121.5 - 364.5
4	high	H	3.0 - 8.0	364.5 - 972	364.5 - 972
5	very high	VH	> 8.0	> 972	> 972

Appendix 4.10 Standard range of extractable sodium concentrations (Land Classification and FAO Project Staff, 1973; Soil Survey Division Staff, 1993)

No	Levels		Range		
			cmol.kg ⁻¹	mg.kg ⁻¹	ppm
1	very low	VL	< 0.1	< 23	< 23
2	low	L	0.1 - 0.3	23 - 69	23 - 69
3	medium	M	0.3 - 0.7	60 - 161	60 - 161
4	high	H	0.7 - 2.0	161 - 460	161 - 460
5	very high	VH	> 2.0	> 460	> 460

Appendix 4.11 Standard range of soil chemical properties assessment (Land Classification and FAO Project Staff, 1973)

No	Levels		Range				
			CEC (cmol.kg ⁻¹)	OM (g.kg ⁻¹)	BS (%)	P (mg.kg ⁻¹)	K (mg.kg ⁻¹)
1	very low	VL	< 3	< 5	-	< 3	< 30
2	low	L	3 - 5	5 - 10	35	3 - 6	30 - 60
3	moderately low	ML	5 - 10	10 - 15	-	6 - 10	-
4	medium	M	10 - 15	15 - 25	35 - 75	10 - 15	60 - 90
5	moderately high	MH	15 - 20	25 - 35	-	15 - 25	-
6	high	H	20 - 30	35 - 45	> 75	25 - 45	90 - 120
7	very high	VH	> 30	> 45		> 45	> 120

Appendix 4.12 Standard range of fertility assessment using soil chemical properties (Soil Survey Division, 1980)

No	Levels	CEC (cmol.kg^{-1})	OM (g.kg^{-1})	BS (%)	P (mg.kg^{-1})	K (mg.kg^{-1})
1	low (score)	< 10 (1)	< 15 (1)	< 35 (1)	< 10 (1)	< 60 (1)
2	medium (score)	10 - 20 (2)	15 - 35 (2)	35 - 75 (2)	10 - 25 (2)	60 - 90 (2)
3	high (score)	> 20 (3)	> 35 (3)	> 75 (3)	> 25 (3)	> 90 (3)

Note total score ≤ 7 = low fertile, total score 8-12 = moderately fertile,
total score ≥ 13 = high fertile

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