Diversity and Structural Composition of Trees in Bamu Reserved Forest of Cox's Bazar Forest Division, Bangladesh

M. K. Hossain, M. Hossain[1] and M. K. Alam[2]

Institute of Forestry and Environmental Sciences, Chittagong University, Chittagong 4331; [1] Cox's Bazar Forest Division, [2] Bangladesh Forest Research Institute, P. O. Box 273, Chittagong 4000, Bangladesh

Abstract

Diversity and distribution pattern of tree species of Bamu Reserved Forest of Cox's Bazar were studied by count plot method for analysing stand composition. A total of 85 tree species were recorded from the forest of which 77 species belonging to 30 families were identified. Leguminosae and Moraceae ranked top with seven species followed by Verbenaceae and Euphorbiaceae each with six species. The Importance Value Index (IVI) of each species was calculated to characterize the composition of vegetation. *Bursera serrata* showed the highest (18.91) IVI followed by *Artocarpus chama* (14.82), *Pterospermum acerifolium* (14.04), *Hopea odorata* (13.73), *Glochidion multiloculare* (13.19) and *Vitex peduncularis* (10.51). Distribution of the number of individuals of each species in nine diameter classes (≤10cm - > 80cm with 10cm intervals) were calculated with respect to total individuals. It showed that maximum percentage of individuals (35.08%) belonged to ≤10cm diameter class, while largest diameter class (>80cm) represented the lowest percentage (1.82%). *Bursera serrata* had the highest (8.04%) percentage distribution followed by *Glochidion multiloculare* (7.67%), *Dipterocarpus turbinatus* (5.85%), *Hopea odorata* (5.36%), *Pterospermum acerifolium* (4.87%), *Bauhinia acuminata* (4.03%) and *Lagerstroemia speciosa* (3.05%). The rest of the species had values ≤ 2.8%.

সারসংক্ষেপ

বাংলাদেশের কক্সবাজার বন বিভাগের সংরক্ষিত বমু বনাঞ্চলের বৃক্ষ প্রজাতি সমূহের বৈচিত্রতা ও বিন্যাস প্রকরণ সম্পর্কে নিরীক্ষা চালানো হয়। সর্বমোট ৮৫টি বৃক্ষ প্রজাতি রেকর্ড করা হয় যার মধ্যে ৩০টি গোত্রভুক্ত প্রজাতি শনাক্ত করা হয়। ৭টি প্রজাতি নিয়ে লিগোমিনোসী এবং মরেসী গোত্র শীর্ষে এবং এর পর প্রত্যেকের ৬টি করে প্রজাতি নিয়ে ভার্বিনেসী ও ইউফোরবেসীর প্রত্যেক প্রজাতির ইম্পোর্টেন্স ভ্যালু ইনডেক্স গণনা করে ঐ উদ্ভিদরাজির কমপোজিশন বর্ণনা করা হয়। *Bursera serrata* সবচেয়ে বেশী ইম্পোর্টেন্স ভ্যালু ইনডেক্স (১৮.৯১) প্রদর্শন করে এবং এর পরে *Artocarpus chama* (১৪.৮২), *Pterospermum*

acerifolium (১৪.০৪), *Hopea odorata* (১৩.৭৩), *Glochidion multiloculare* (১৩.১৯) এবং *Vitex peduncularis* (১০.৫১)। প্রত্যেকটা প্রজাতির সর্বমোট সংখ্যার ৯টি (≤ ১০ সেঃমিঃ > ৮০ সেঃমিঃ, প্রতিটি ১০ সেঃমিঃ পর পর) ব্যাস ভিত্তিক শতকরা শ্রেণী বন্টন হার নির্ণয় করা হয় এবং দেখা যায় যে, সবচেয়ে বেশী শতকরা হার (৩৫.০৮%) ≤ ১০ সেঃমিঃ, ব্যাস শ্রেণী বিভাগ এবং সবচেয়ে বড় ব্যাস ভিত্তিক শ্রেণীতে (≤ ৮০ সেঃমিঃ) সবচেয়ে কম (১.৮২%) বৃক্ষ বিরাজিত। *Bursera serrata* সবচেয়ে বেশী (৮.০৪%) ব্যাস ভিত্তিক শতকরা শ্রেণী বন্টন হার দেখায় এবং এর পর *Glochidion multiloculare* (৭.৬৭%), *Dipterocarpus turbinatus* (৫.৮৫%), *Hopea odorata* (৫.৩৬%), *Pterospermum acerifolium* (৪.৮৭%), *Bauhinia acuminata* (৪.০৩%) এবং *Lagerstroemia speciosa* (৩.০৫%)। বাকী সমস্ত বৃক্ষ প্রজাতির শতকরা বন্টন হার ≤ ২.৮০%।

Key words : Biodiversity, diameter classes, distribution pattern, importance value index, natural forest, structural composition

Introduction

Bangladesh, a very densely populated country, lies between 20°34´ and 26°38´ North latitudes and between 88°01´ and 92°41´ East longitudes with a forested land of approximately 2.41 million hectare (Reza *et al.* 1992). Out of this, 1.37 million ha (9.5%) is managed by the Forest Department and 0.74 million ha (5%) is under the jurisdiction of the district administration (Das and Siddiqi 1985, Reza *et al.* 1992). The wet evergreen natural forests of Bangladesh are relics of the great Asian Pacific lowland rain forest community possessing a unique status of species richness and scientific values. But these forests are decreasing day by day. It is recently estimated that this forest area has decreased drastically to 5.4% of the total land area of Bangladesh due to over exploitation, illicit felling, shifting cultivation, encroachment, overgrazing, migration of plain land people to forest land, etc. (ADB-1993). Clear felling followed by artificial regeneration with single species and monoculture practice enhance the rapid depletion of forest composition and wildlife resources. Loss of biological resources, habitat degradation, erosion of gene pool and narrowing of genetic diversity are of serious concern for future preservation of flora and fauna.

Adequate information on species composition of forest is essential for natural forest management, both in terms of forest's full economic value and its regeneration potential (Wyatt-Smith 1987). This study was aimed at examining the tree species composition of a natural hill forest of Bangladesh. Bamu Reserved Forest was selected as the study site as it is a typical representative of the existing natural forest. This paper deals with species composition, present stock and relative distribution of each species in different diameter classes in Bamu Reserved Forest.

Materials and methods

The Bamu reserved forest is situated under Fashiakhali Range of Cox's Bazar Forest Division. It lies between 20°51´ and 21°47´ North latitudes and between 91°54´ and 92°19´ East longitudes (Chowdhury 1969, Ahmed and Haque 1993). The total area of the Bamu Reserved Forest is 603 ha

consisting of four patches of stand. The forest is classified as tropical semi-evergreen forest (Champion *et al.* 1965). The topography is very rugged and irregular, consisting of a series of ridges running more or less north and south. The soil varies from clay to clayey-loam on level ground and from sandy loam to coarse sand on hilly ground (Chowdhury 1969). The study site enjoys a moist tropical climate with high rainfall concentrated during the monsoon period from June to September. The mean annual maximum and minimum temperature is 29.7^{0}C and 21.8^{0}C respectively. The relative humidity is very high, 70-80% with only minor variation, thus forming the climate moist.

Based on preliminary investigation, stratified sampling method was selected to collect field data. Before going to the field, the detailed map of the Bamu Reserved Forest was consulted, and 36 sample plots, each 20m x 20m in size, were randomly marked. Plant samples from each plot were collected for identification. Total individuals of different species in different stratification were recorded from 36 sample plots. Relative frequency (RF), relative density (RD), relative dominance (RDo) and then Importance Value Index (IVI) of each species were calculated following Mueller-Dombois and Ellenberg (1974) and Michael (1990).

Results and discussion

The tree flora of this semi-evergreen forest reserve comprise of 85 species of which 77 were identified up to species belonging to 30 families (Table 1). Leguminosae and Moraceae ranked top with seven species followed by Euphorbiaceae and Verbenaceae with six species each. These were followed by Anacardiaceae, Dipterocarpaceae, Fagaceae, Myrtaceae, Rubiaceae and Sterculiaceae with four species under each family. Bombacaceae, Dilleniaceae, Ebenaceae, Elaeocarpaceae, Juglandaceae, Lythraceae, Myrsinaceae, Oleaceae, Palmae, Rutaceae, Sapotaceae, Ternstroemiaceae, Theaceae, Tiliaceae and Urticaceae were represented by single species only.

Bursera serrata possesses the highest IVI (18.91) followed by *Artocarpus chama* (14.82) and *Pterospermum acerifolium* (14.04). Some other dominant species present in this forest area are *Hopea odorata* (13.73), *Glochidion multiloculare* (13.19), *Vitex peduncularis* (10.51) and *Lagerstroemia speciosa* (8.95). *Dipterocarpus turbinatus* possesses the Importance Value Index of 7.53 followed by *Dipterocarpus costatus* (2.23) and *Dipterocarpus alatus* (2.27). According to Michael (1990), dominancy of one or a few species lowers the tree species diversity of a forest. But from the analysis it appears that the dominancy of one or a few species is not so distinct though some species have higher IVI, which is not so abundant or distributed all over the forest. However, *Artocarpus chama*, *Pterospermum acerifolium*, *Bursera serrata* and *Hopea odorata* can be considered to be dominants all over the Bamu forest as they have higher IVI values.

Percentage distribution of individuals (or stems) of different species in different diameter classes with respect to total individuals are shown in Table 2. It also indicates that the maximum percentage of individuals (35.08%) belonged to ≤10cm diameter class, whereas the lowest percentage (1.82%) was represented by the largest diameter class (>80cm). The Table also shows that the percentage of the number of individuals tends to decrease as the diameter class increases. The

Table 1. List of identified tree species found in the Bamu Reserved Forest along with their family, scientific names and Importance Value Index (IVI).

Family names	Species names	IVI
ANACARDIACEAE	01. *Holigarna longifolia* Roxb.	3.66
	02. *Lannea coromandelica* (Houtt.) Merr.	3.66
	03. *Mangifera sylvatica* Roxb.	1.56
	04. *Swintonia floribunda* Griff.	4.89
APOCYNACEAE	05. *Alstonia scholaris* Br.	2.76
	06. *Holarrhena antidysenterica* (L.) Wall.	4.61
BOMBACACEAE	07. *Bombax ceiba* L.	2.61
BURSERACEAE	08. *Bursera serrata* Wall. ex Cloebr.	18.91
	09. *Garuga pinnata* Roxb.	0.43
COMBRETACEAE	10. *Anogeissus acuminata* Wall.	4.33
	11. *Terminalia bellirica* Roxb.	7.1
	12. *Terminalia chebula* (Gaertn.)Retz.	1.94
DILLENIACEAE	13. *Dillenia pentagyna* Roxb.	9.76
DIPTEROCARPACEAE	14. *Dipterocarpus alatus* Roxb. ex G. Don	2.27
	15. *Dipterocarpus costatus* Gaertn.	2.23
	16. *Dipterocarpus turbinatus* Gaertn.	7.53
	17. *Hopea odorata* Roxb.	13.73
EBENACEAE	18. *Diospyros* sp.	1.89
ELAEOCARPACEAE	19. *Elaeocarpus robustus* Roxb.	1.55

Table 1. Contd.

Family names	Species names	IVI
EUPHORBIACEAE	20. *Antidesma ghasembilla* Gaertn.	0.36
	21. *Aporusa dioica* (Roxb.) Muell. - Arg.	1.18
	22. *Bischofia javanica* Bl.	2.54
	23. *Embelica officinalis* L.	1.38
	24. *Glochidion multiloculare* Muell. -Arg.	13.19
	25. *Mallotus philippensis* (Lam.) Muell. -Arg.	1.37
FAGACEAE	26. *Castanopsis indica* A. DC.	0.98
	27. *Quercus acuminata* Roxb.	2.05
	28. *Quercus spicata* Sm.	2.44
	29. *Quercus thomsonii* Miq.	5.69
JUGLANDACEAE	30. *Engelhardtia spicata* Les. ex. Bl.	4.68
LAURACEAE	31. *Cinnamomum iners* Reinw.	2.16
	32. *Dehaasia kurzii* King	1.52
LEGUMINOSAE	33. *Albizia chinensis* (Osb.) Merr.	3.03
	34. *Albizia lebbeck* (L.) Benth.	1.06
	35. *Albizia odoratissima* (L.f.) Benth.	1.41
	36. *Albizia procera* Benth.	3.88
	37. *Bauhinia acuminata* L.	9.32
	38. *Cassia nodosa* Buch. - Ham.	1.66
	39. *Erythrina orientalis* (L.) Murr.	0.86
LYTHRACEAE	40. *Lagerstroemia speciosa* (L.) Pers.	8.95
MELIACEAE	41. *Aphanamixis polystachya* (Wall.) Parker	5.68
	42. *Chuckrasia tabularis* Juss.	1.86
	43. *Toona ciliata* J. Roem.	1.81

Table 1. Contd.

Family names	Species names	IVI
MORACEAE	44. *Artocarpus chama* Roxb.	14.82
	45. *Artocarpus lacucha* Buch. - Ham.	2.35
	46. *Ficus bengalensis* L.	1.08
	47. *Ficus hispida* L.	1.38
	48. *Ficus racemosa* L.	3.33
	49. *Ficus semicordata* Buch.-Ham.ex Smith	1.72
	50. *Ficus* sp.	1.63
MYRSINACEAE	51. *Maesa ramentacea* A. DC.	2.17
MYRTACEAE	52. *Syzygium claviflorum* (Roxb.) Wall.	0.65
	53. *Syzygium fruticosum* (Roxb.) DC.	4.19
	54. *Syzygium grande* (Wt.) Wall.	4.35
	55. *Syzygium syzygioides* (Miq.) Merr.	0.77
OLEACEAE	56. *Olea dioica* Roxb.	1.16
PALMAE	57. *Areca triandra* Roxb.	0.99
RUBIACEAE	58. *Adina cordifolia* Hook.	5.66
	59. *Adina sessilifolia* Hook.	3.66
	60. *Anthocephalus chinensis* (Lamk.) Rich.ex Walp.	0.55
	61. *Xeromphis spinosa* (Thunb.) Keay	1.74
RUTACEAE	62. *Zanthoxyllum rhetsa* (Roxb.) DC.	0.45
SAPOTACEAE	63. *Mimusops elengi* L.	0.91

Table 1. Contd.

Family names	Species names	IVI
STERCULIACEAE	64. *Pterorspermum acerifolium* Willd.	14.04
	65. *Pterospermum semisagittatum* Ham.	5.19
	66. *Sterculia colorata* Roxb.	1.33
	67. *Sterculia villosa* Roxb.	1.1
TERNSTROEMIACEAE	68. *Eurya acuminata* DC.	0.53
THEACEAE	69. *Schima wallichii* Chois.	4.42
TILIACEAE	70. *Microcos paniculata* L.	6.18
URTICACEAE	71. *Streblus asper* Lour.	1.45
VERBENACEAE	72. *Callicarpa arborea* Roxb.	1.65
	73. *Callicarpa macrophylla* Vahl.	0.62
	74. *Gmelina arborea* (Roxb.)DC.	0.87
	75. *Vitex glabrata* Br.	3.70
	76. *Vitex peduncularis* Wall.	10.51
	77. *Vitex* sp.	6.34
	Unidentified species (8 spp.)	14.07

Table 2. Distribution of tree individuals of each species in different diameter classes (cm).

Sl. No.	Species names	Diameter classes (cm) ≤10 cm	10.1 - 20.0	20.1 - 30.0	30.1 - 40.0	40.1 - 50.0	50.1 - 60.0	60.1 - 70.0	80.1 - 70.0	>80 cm	% of total
01.	*Adina cordifolia*	-	0.24	-	-	-	-	-	-	-	0.24
02.	*Adina sessilifolia*	-	0.12	-	-	-	0.24	-	-	-	0.36
03.	*Albizia chinensis*	-	0.12	-	0.24	-.12	-	0.12	-	-	0.06
04.	*Albizia lebbeck*	-	-	0.12	-	-	0.12	-	-	-	0.24
05.	*Albizia odoratissima*	-	0.37	-	-	-	-	-	-	-	0.37
06.	*Albizia procera*	-	0.24	0.12	0.37	0.24	-	-	-	-	0.97
07.	*Alstonia scholaris*	-	0.12	-	0.61	-	-	-	-	-	0.73
08.	*Anogeissus acuminata*	0.36	0.61	0.24	-	-	-	-	-	-	1.21
09.	*Anthocephalus chinensis*	-	-	-	-	0.12	-	-	-	-	0.12
10.	*Antidesma ghasembilla*	0.12	-	-	-	-	-	-	-	-	0.12
11.	*Aphanamixis polystachya*	0.24	0.12	0.24	0.72	0.12	0.12	-	-	-	1.56
12.	*Aporusa dioica*	-	0.12	0.12	-	-	-	-	-	-	0.24
13.	*Areca triandra*	-	0.24	0.12	-	-	-	-	-	-	0.36
14.	*Artocarpus chama*	0.49	0.12	0.24	0.49	0.37	0.12	0.24	0.12.	0.37	2.56
15.	*Artocarpus lacucha*	0.12	0.12	0.37	0.12	-	-	-	-	-	0.73
16.	*Bauhinia acuminata*	2.68.	0.37	0.24	0.37	0.37	-	-	-	-	4.03
17.	*Bombax ceiba*	-	0.24	0.12	-	-	0.12	-	-	-	0.48
18.	*Bischofia javanica*	0.49	0.49	0.24	-	-	-	-	-	-	1.22
19.	*Bursera serrata*	4.15	1.34	0.61	0.85	0.49	0.24	0.12	0.24	-	8.04
20.	*Callicarpa arborea*	-	-	0.12	0.12	0.12	-	-	-	-	0.36
21.	*Callicarpa macrophylla*	-	0.24	-	-	-	-	-	-	-	0.24
22.	*Cassia nodosa*	-	0.12	0.12	0.24	-	-	-	-	-	0.48
23.	*Castanopsis indica*	-	-	-	0.24	-	-	-	-	-	0.24
24.	*Chuckrasia tabularis*	0.12	-	-	0.12	-	-	-	-	-	0.24
25.	*Cinnamomum iners*	0.37	0.12	-	0.12	0.12	-	-	-	-	0.73
26.	*Dehaasia kurzii*	0.61	-	-	-	-	-	-	-	-	0.61

Table 2. Contd.

Sl. No.	Species names	Diameter classes (cm) ≤10 cm	10.1 - 20.0	20.1 - 30.0	30.1 - 40.0	40.1 - 50.0	50.1 - 60.0	60.1 - 70.0	70.1 - 80.0	>80 cm	% of total
27.	*Dillenia pentagyna*	0.61	0.12	-	0.37	0.85	0.12	0.12	-	0.24	2.43
28.	*Diospyros* sp.	-	-	-	0.12	0.37	-	-	-	-	0.49
29.	*Dipterocarpus alatus*	0.12	0.24	0.12	-	0.12	0.36	0.12	0.37	-	1.45
30.	*Dipterocarpus costatus*	-	-	-	0.12	-	0.12	0.12	-	-	0.36
31.	*Dipterocarpus turbinatus*	1.22	1.1	0.73	0.61	0.98	0.73	0.24	0.12	0.12	5.85
32.	*Elaeocarpus robustus*	-	0.12	0.24	-	-	-	0.12	-	-	0.48
33.	*Embelica officinalis*	0.37	-	-	-	-	-	-	-	-	0.37
34.	*Engelhardtia spicata*	0.12	0.24	0.12	0.37	0.37	-	-	-	-	1.22
35.	*Erythrina orientalis*	0.12	-	-	-	-	-	-	-	-	0.12
36.	*Eurya acuminata*	-	-	0.12	-	-	-	-	-	-	0.12
37.	*Ficus* sp.	-	-	-	-	0.12	-	-	-	-	0.12
38.	*Ficus bengalensis*	-	-	-	-	-	-	-	0.12	-	0.12
39.	*Ficus hispida*	0.12	-	-	0.24	-	-	-	-	-	0.36
40.	*Ficus racemosa*	0.12	0.37	0.24	0.24	-	-	-	-	-	0.97
41.	*Ficus semicordata*	-	0.12	0.12	0.12	0.12	-	-	-	-	0.48
42.	*Garuga pinnata*	-	-	-	-	-	0.12	-	-	-	0.12
43.	*Glochidion multiloculare*	6.46	0.73	0.24	-	0.24	-	-	-	-	7.67
44.	*Gmelina arborea*	-	0.24	-	-	-	-	-	-	-	0.24
45.	*Holarrhena antidysenterica*	1.22	0.73	0.73	-	-	-	-	-	-	2.68
46.	*Holigarna longifolia*	0.49	0.49	0.37	-	-	-	-	-	-	1.35
47.	*Hopea odorata*	2.68	0.61	0.24	0.12	0.49	0.24	0.37	0.24	0.37	5.36
48.	*Lagerstroemia speciosa*	0.98	0.12	0.49	0.49.	0.12	0.49	-	0.12	0.24	3.05
49.	*Lannea coromandelica*	-	0.12	-	0.24	0.12	0.24.	-	-	-	0.72
50.	*Maesa ramentacea*	1.22	-	-	-	-	-	-	-	-	1.22
51.	*Mallotus philippensis*	0.24	-	-	-	-	-	-	-	-	0.24
52.	*Mangifera sylvatica*	-	-	0.12	-	-	-	0.12	-	-	0.24
53.	*Microcos paniculata*	1.34	0.37	0.61	0.12	-	-	-	-	-	2.44
54.	*Mimusops elengi*	-	-	0.24	-	-	-	-	-	-	0.24

Table 2. Contd.

Sl. No.	Species names	Diameter classes (cm) ≤10 cm	10.1 - 20.0	20.1 - 30.0	30.1 - 40.0	40.1 - 50.0	50.1 - 60.0	60.1 - 70.0	70.1 - 80.0	>80 cm	% of total
55.	*Olea dioica*	0.24	-	-	-	-	-	-	-	-	0.24
56.	*Pterospermum acerifolium*	0.24	1.22	1.1	0.85	0.61	0.49	0.12	0.24	-	4.87
57.	*P. semisagittatum*	0.73	-	0.12	-	-	0.24	0.12	-	0.12	1.33
58.	*Quercus acuminata*	0.61	-	0.24	0.12	-	-	-	-	-	0.97
59.	*Quercus spicata*	0.85	0.37	0.12	0.12	-	-	-	-	-	1.46
60.	*Quercus thomsonii*	1.46	0.98	0.24	0.12	-	-	-	-	-	2.8
61.	*Schima wallichi*	-	0.24	0.37	0.12	0.24	0.24	-	0.12	-	1.33
62.	*Sterculia colorata*	0.12	-	-	-	-	-	-	-	-	0.12
63.	*Sterculia villosa*	0.12	-	-	-	-	-	0.12	-	-	0.24
64.	*Streblus asper*	-	0.12	0.37-	-	-	-	-	-	-	0.49
65.	*Swintonia floribunda*	0.12	-	-	-	0.12	-	0.37	-	0.12	0.73
66.	*Syzygium claviflorum*	0.24	-	-	-	-	-	-	-	-	0.24
67.	*Syzygium fruticosum*	0.37	0.37	-	0.12	0.12	0.24	-	-	-	1.22
68.	*Syzygium grande*	0.12	0.61	0.24	0.37	0.12	-	-	0.12	-	1.58
69.	*Syzygium syzygioides*	0.24	-	-	-	-	-	-	-	-	0.24
70.	*Terminalia bellirica*	0.85	0.37	0.37	0.37	-	0.12	-	-	0.12	2.2
71.	*Terminalia chebula*	-	0.44	-	0.12	0.12	-	0.12	-	-	0.80
72.	*Toona ciliata*	-	-	-	-	-	0.12	-	-	-	0.12
73.	*Vitex* sp.	0.24	0.37	0.49	-	0.85	-	-	-	-	1.95
74.	*Vitex glabrata*	0.49	0.74	0.24	-	-	-	-	-	-	1.97
75.	*Vitex peduncularis*	0.37	0.49	0.49	0.61	0.61	0.12	-	-	0.12	2.8
76.	*Xeromphis spinosa*	0.12	0.12	0.12	-	-	-	-	-	-	0.36
77.	*Zanthoxyllum rhetsa*	-	-	-	0.12	-	-	-	-	-	0.12
Unidentified species		0.37	1.59	1.49	0.61	0.24	0.12	0.12	0.12	-	4.65
Total		35.08	19.21	13.74	11.42	9.08	5.07	2.66	1.93	1.82	100

different diameter classes were found dominated by different species. Diameter class of ≤10cm was dominated by *Glochidion multiloculare* (6.46%) and *Bursera serrata* (4.15%). 10.1-20 cm diameter class was dominated by *Bursera serrata* (1.34%), *Pterospermum acerifolium* (1.22%) and *Dipterocarpus turbinatus* (1.1%). 20.1-30 cm diameter class shows dominance of *Pterospermum acerifolium* (1.1%) followed by *Dipterocarpus turbinatus* (0.73%) and *Holarrhena antidysenterica* (0.73%). 30.1-40 cm diameter class was dominated by *Bursera serrata* (0.85%) and *Pterospermum acerifolium* (0.85%). 40.1-50cm diameter class was dominated by *Dipterocarpus turbinatus* (0.98%), *Dillenia pentagyna* and *Vitex* sp. each with 0.85% distribution. 50.1-60cm diameter class was dominated by *Dipterocarpus turbinatus* (0.73%). However, *Hopea odorata* and *Swintonia floribunda* were the major species in 60.1-70cm diameter class. *Dipterocarpus alatus* was found to be the dominant species in 70.1-80 cm diameter class. Among nine species in >80cm diameter class, *Hopea odorata* and *Artocarpus chama* were dominant having 0.37% distribution each. Other species found in this diameter class were *Dipterocarpus turbinatus, Dillenia pentagyna, Vitex peduncularis, Swintonia floribunda, Terminalia bellirica, Pterospermum semisagittatum* and *Lagerstroemia speciosa*. From the Table it is also evident that lower diameter classes were dominated by *Glochidion multiloculare* and *Bursera serrata*. *Pterospermum acerifolium* were found common in middle diameter classes. *Artocarpus chama, Dipterocarpus turbinatus* and *Hopea odorata* were distributed in all the diameter classes.

These results also show the natural regeneration potentiality of the forest. These findings agree well with Brown (1992) that rain forests have both substantial seedling and soil seed bank from which regeneration can occur. The percentage distribution of all the species found in this study is slightly different from the findings of Haque and Alam (1988) and Ahmed and Haque (1993),where they restricted their studies with the dominant species only. Among the species recorded in the present study, the timber species in demand are *Adina cordifolia, Albizia procera, Artocarpus chama, Chuckrasia tabularis, Dipterocarpus* spp., *Gmelina arborea, Hopea odorata, Lagerstroemia speciosa, Syzygium* spp. and *Toona ciliata*. Most of the remaining species are known as lesser used species or D-class trees. The average density calculated as 369 stem/ha is higher than that of De Milde *et al.* (1985) and Ahmed and Haque (1993). Howard and Valerio (1992) estimated 283 stems/ha of dbh greater than 10cm in a well stocked natural forest of Costa Rica. In comparison to all these studies, the Bamu Reserved Forest is still be considered as well stocked natural forest.

Distribution of a good number of tree species (85) under few size classes (9), or even in one or two size classes indicates that there might had some problem in regeneration or recruitment. Uniform distribution in size classes helps in sustained production. For a sustained management, the factors causing limited size-class distribution need to be investigated. Phytogeographically Chittagong region falls between two major floristic regions (Khan 1977). Considering the species richness, stocking, abundance and uniform distribution of many important species like *Artocarpus chama, Bursera serrata, Dipterocarpus alatus, D. turbinatus, Engelhardtia spicata, Hopea odorata*, we recommend to declare Bamu Reserved Forest as a protected area.

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