

Angiospermic flora of Borail Wildlife Sanctuary (BWS) in Assam, India : First report

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[Received 29.11.2018; Revised 18.12.2018; Accepted 23.12.2018; Published 31.12.2018]

Abstract

The present investigation deals with the composition of angiosperm plants in the Borail Wildlife Sanctuary, Assam. A total of 281 angiosperm plant species under 199 genera and 64 families were recorded from the sanctuary during the survey period. Angiosperm included herbs (84), trees (83), shrubs (45), climber (38), creeper (01), lianas (6), palm (3), grass (10), sedge (6) and bamboo (5) species.

Key words: Angiosperm flora, Borail Wildlife Sanctuary, Assam

INTRODUCTION

Protected areas help to reduce forest fragmentation and degradation through protection laws and best management practices for biodiversity conservation. Wildlife sanctuary is endowed with ecological, floral, faunal and geomorphologic significance (Shukla 2016). Protected areas helps in recharging ground water, offer scope for pollination of commercially valuable crops, act as carbon sink, helps in soil stabilization etc. (Noss 1992). In Wildlife sanctuary, animals are brought to life and protected for the rest of their life until their natural death (Seikh 2018).

Assam has an geographical area of 78,433 sq. km, lying in between 24°44' N to 27°45' N latitude and 89°41' and 96°02' E longitudes. The state is surrounded by hills and mountains on the north, east and the south side. To the west, it merges with the West Bengal and Bangladesh plains. The state has the Brahmaputra valley in the northern part bordering to Arunachal Pradesh and the Barak valley in the southern part bordering to Mizoram, Tripura and Meghalaya. The state is enriching with 3832 (dicotyledons 2752 and monocotyledon 1080) species of angiosperm plants comprising of 1370 (dicotyledons 1012 and monocotyledon 368) genera distributed in 229 (dicotyledons 189 and monocotyledon 40) families (Chowdhury 2005).

Barail Wildlife Sanctuary (BWS) is situated in the northern part of Cachar district of Assam and lies along the foothills of the North Cachar and Barail hills (Plate:1). The sanctuary is located between latitude 24°58' - 25°50' N and longitude 92°50' - 92°52' E. The total area covered by this wildlife sanctuary is 326.24 sq km. Barail Wildlife Sanctuary is a combination Barail Reserve Forest and North Cachar Reserve Forest, which were together upgraded to Barail Wildlife Sanctuary in June 2004. The BWS is under the administrative control of the Southern Assam Forest Circle, Silchar, and consists of Barail Reserve Forest, which is part of the Cachar Forest Division (East Block) and North Cachar Reserve Forest, part of the Karimgunj Forest Division (West Block). The BWS is governed under two forest range

offices namely, Udharbond and Kalain range offices (Hussain 2015; Bora & Bhattacharyya 2017; Bora *et al.* 2017).

The climate is humid tropical to sub-tropical; annual rainfall varies from 200 cm /year to 600cm /year and the average humidity is 72 – 90%. Temperatures range minimum 8°C and maximum temperatures 38°C. Major rivers draining the sanctuary are the Jatinga (Photo-1), Daloo (Photo-24), Kayong, Gumra, and Boleswar. The sanctuary is characterized by undulating hills having altitudinal range of less than 30 m to more than 1867 m. Geologically, the soils are sandy stony to clayey. The area is one of the richest treasure houses of flora as well as fauna due to its unique geographical position, diverse landscapes, wide range of physiographic conditions and high precipitation. As per classification of Champion and Seth (1968), the sanctuary has 2 broad groups of forests, tropical wet evergreen (Photo - 27) and tropical semi-evergreen forests. Tree, shrub and lianas species forming a thick vegetation of the sanctuary, Forest floor is enriched by many herbaceous species. The main secondary landscape elements are cultivated flatland, extensive bamboo brakes (Photo-26), tree plantations (Teak and Sal), secondary and disturbed forest (betel-vine plantation), and village gardens including Areca nut plantations (Barbhuiya & Singh 2012; Hussain 2015; Bora & Bhattacharyya 2017; Bora *et al.* 2017).

Several publications came out on assessment of plant diversity in protected areas of Assam. Some of them are Sarkar & Devi (2015) on Assessment of plant diversity in Hollongapar Gibbon Wildlife Sanctuary; Jain & Hajra (1975) on the plant diversity of Manas Wildlife Sanctuary; Dutta *et al.* (1974) on forest flora of North Cachar Hills and Borail Range; Buragohain & Swargiari (2016) on Diversity and conservation of *Ficus Linnaeus* (Moraceae) in Chakrashila Wildlife Sanctuary; Baruah & Baruah (2000) on hydrophytes of Kaziranga National Park; Baruah & Baruah (2007) on vegetation characteristics of grassland of Kaziranga National Park; Baruah *et al.* (2003) on biodiversity status in Manas Biosphere reserve; Bharali & Borua (2003) on diversity of orchid flora of Dibru-Saikhowa National Park and Biosphere Reserve; Gogoi *et al.* (2009) on orchid flora of Joypur Reserve Forest of Dibrugarh district; Gogoi *et al.* (2009) on orchid flora of Dibru-Saikhowa National Park and Biosphere Reserve; Gogoi (2005) on *Dendrobium* genus of Dibru-Saikhowa National park and Biosphere Reserve; Dey *et al.* (2007) on Orchid diversity in Manas National Park, Assam; Bujarbarua & Sarma (2006) on the diversity of family Poaceae in Gibbon Wildlife Sanctuary, Assam; Konwar *et al.* (2009) on abundance of food plant species and food habits of *Rhinoceros unicornis* L. in Pobitora Wildlife Sanctuary; Talukdar & Deori (2017) on Floristic Diversity of Laokhowa Wildlife Sanctuary; Nath (2012) on Aquatic macrophytes of Laokhowa Wildlife Sanctuary; Deori & Talukdar (2015) Floristic Diversity of Barnadi Wildlife Sanctuary; Kar *et al.* (2015) on vascular plant diversity in Amchang Wildlife Sanctuary

As far as plant diversity study of the Borail Wildlife Sanctuary is concerned, only few report on angiosperm plants (Dutta *et al.* 1974); on observations of trees and lianas of Borail Wildlife Sanctuary (Bora & Bhattacharyya 2017); on Grasses and bamboos of Borail Wildlife Sanctuary (Bora *et al.* 2017) is available. There is no report of herbaceous plant is available, thus this work is attempt to provide information all the herb, shrub, tree, lianas and epiphytes, cane & bamboo. Therefore, present investigations were carried out with the objective- study of angiosperm plant diversity of Borail wildlife Sanctuary.

MATERIALS AND METHODS

Detailed surveys of the angiosperm plants of Borail Wildlife Sanctuary were conducted from April 2018 to December 2018 covering wild species. Surveys were conducted from nine sites of the sanctuary mostly from East block *viz.*, Madhura, Indranagar, Khasia Punji,



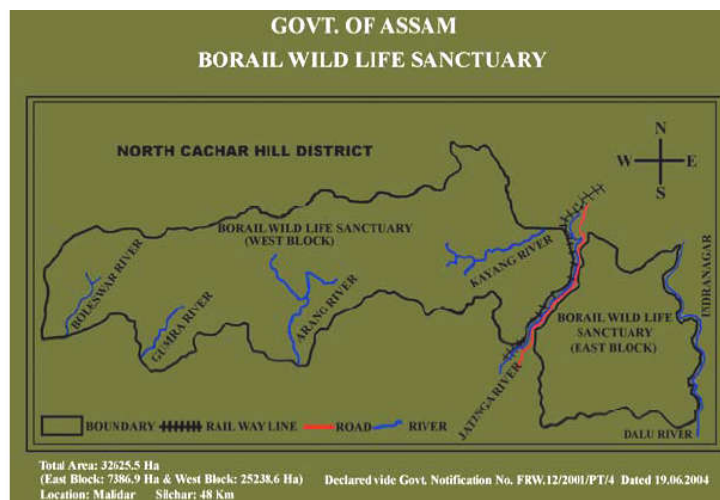


Figure 1. Map (not to scale) of the study area

Kapocherra, Balacherra, Marwa cherra, Durbin tilla, and dense forest areas of the East Block and in West block Damcherra and Bandarkhal area. External mor-phological characteristics including hairs, stipules and floral parts, of collected specimens was observed using Foldscope microscope. Characteristics of each species were observed and noted. The collected specimens were processed into mounted herbarium specimen following standard herbarium techniques (Jain & Rao 1977). Identification of the specimens was done by comparing the field descriptions and observations with the descriptions available in authentic literature (Kanjilal *et al.* 1934 – 1940; Chowdhury, 2005) and confirmed with ASSAM Herbarium, Shillong. Herbarium specimens were deposited at the TERI herbarium as a voucher specimen for future reference. The International Plant Name Index (IPNI 2012), The Plant List (2013) and Tropicos (2017) were consulted for current nomenclature of all taxa. The Angiosperm Phylogeny Group III Classification (APG III 2009) was followed for the classification of families. The families were arranged in alphabetical order.

RESULTS AND DISCUSSION

A total number of 281 species from 199 genera representing 64 families (Appendix I) were recorded from the study area. Angiosperm comprises of 64 families (dicots 50 and monocots 14), 199 genera (dicots 160 and monocots 39) and 281 species (dicots 224 and monocots 57). Out of the total recorded 281 angiosperm species the composition were herbs (84), trees (83), shrubs (45), climber (38), creeper (01), lianas (6), palm (3), grass (10), sedge (6) and bamboo (5) species.

Among dicotyledons, Asteraceae is the most dominant family in the study area in respect to number of species with (19 species), followed by Fabaceae with (18 species), Lamiaceae, Euphorbiaceae, Moraceae and Mimosaceae each with (11 species), Rubiaceae and Caesalpiniaceae each with (10 species) etc. In Monocot Poaceae is the dominant family with (15 species) followed by Araceae with (7 species), Cyperaceae and Dioscoreaceae each with (6 species), Zingiberaceae and Orchidaceae each with (4 species), Arecaceae and Smilacaceae each with (3 species). Among the dicotyledons *Ficus* is the dominant genera representing with 9 species followed by *Clerodendrum* and *Albizia* each with 6 species, *Desmodium* and *Ipomoea* each with 5 species. Among the monocotyledons most



PLATE - II. Plants of Borail Wildlife Sanctuary: **18.** *Rhynchoetechum ellipticum*; **19.** *Sarcochlamys pulcherrima*; **20.** *Cheilocostus speciosus*; **21.** *Momordica charantia*; **22.** *Licuala spinosa*; **23.** Bamboo orchid population; **24.** Dalu river; **25.** *Arenga pinnata*; **26.** Bamboo and banana thickets; **27.** Tropical wet evergreen forest

Dioscorea is the most dominant genera representing with 6 species followed by *Smilax*, *Bambusa*, *Cyperus* and *Globba* each with 3 species.

CONCLUSION

It is interesting to note that *Bauhinia scandens* and *Heterophragma adenophyllum* each with only 2-3 plant recorded from the whole study area. Among tree, *Callicarpa tomentosa*, *Tectona grandis*, *Sterculia villosa* and among shrub, *Clerodendrum infortunatum*, *Senna tora*, *Cayratia trifolia*, *Leea indica*, *Rhynchotechum ellipticum* etc. Common herb species are *Musa balbisiana*, *Stellaria media*, *Cynodon dactylon*, *Persicaria strigosa* and among climber *Thunbergia grandiflora*, *Ipomoea cheirophylla*, *Argyreia nervosa*, *Ipomoea purpurea* etc. are very common in the study area.

It was observed that, there is severe pressure on the sanctuary due to human activities which is an alarming cause for decline in species diversity. Main problem of the sanctuary is deforestation due to construction of East-West Corridor which is passing through East block of the sanctuary. There is also the problem of stone quarrying, earth cutting which are highly detrimental to the flora and fauna of the sanctuary. Monoculture activities like Areca nut plantation, Tea plantation, and Teak plantation in fringe areas are also threat for the sanctuary. Thus, a multidimensional approach is required with regard to development of a conservation management plan for the safety of the sanctuary. Further research is required on ecology and population dynamics of the species of the sanctuary.

Acknowledgements

Authors are thankful to Office of the Chief Conservator of Forests, Southern Assam Circle, Assam for granting permission to carry out the study in Borail Wildlife Sanctuary. The first author (A. Kar) acknowledges the Department of Biotechnology (DBT), Govt. of India, New Delhi for financial support to undertake this study under the DBT-Foldscope programme.

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APPENDIX - I

Angiospermic Flora of Borail Wildlife Sanctuary

[Abbreviations used: **Habit:** H= Herb; S= Shrub; Cl= Climber; Cr = Creeper; L = Lianas; T= Tree; PA = Palm; G= Grass; SE= Sedge; B= Bamboo; EP = Epiphytic. **Habitat:** RS= Road sides; SS: Stream side; HS= hill slopes; RB = River bank; F = Forest]

Sl. no.	Name of the plants	Habit	Habitat	Distribution
DICOTYLEDONS				
ACANTHACEAE				
1	<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees	H	F	Common
2	<i>Thunbergia grandiflora</i> (Roxb. ex Rottl.) Roxb.	L	F	Very common
ACTINIDIACEAE				
3	<i>Saurauia armata</i> Kurz	T	F	Rare
4	<i>Saurauia roxburghii</i> Wall. [Photo: 10]	T	F	Rare
AMARANTHACEAE				
5	<i>Achyranthes aspera</i> L.	H	RS	Common
6	<i>Alternanthera sessilis</i> (L.) R Br. ex DC.	H	RS	Common
7	<i>Amaranthus spinosus</i> L.	H	RS	Common
8	<i>Amaranthus viridis</i> L.	H	RS	Common
9	<i>Deeringia amaranthoides</i> (Lam.) Merr.	S	HS	Rare
ANACARDIACEAE				
10	<i>Mangifera indica</i> L.	T	F	Common
11	<i>Spondias pinnata</i> (L.f.) Kurz	T	F	Rare
12	<i>Rhus chinensis</i> Mill.	T	F	Rare
APOCYNACEAE				
13	<i>Alstonia scholaris</i> (L.) R.Br.	T	F	Common
14	<i>Hoya verticillata</i> (Vahl) G.Don	Cr	F	Common

Sl. no.	Name of the plants	Habit	Habitat	Distribution
DICOTYLEDONS (contd.)				
15	<i>Tabernaemontana divaricata</i> (L.) R.Br. ex Roem. & Schult.	S	F	Common
16	<i>Wrightia arborea</i> (Dennst.) Mabb.	T	F	Rare
17	<i>Wrightia antidysenterica</i> (L.) R.Br.	T	F	Rare
ARALIACEAE				
18	<i>Aralia armata</i> (Wall.ex G.Don) Seem.	S	F	Rare
19	<i>Trevesia palmata</i> (Roxb. ex Lindl.) Vis.	T	F	Rare
20	<i>Schefflera venulosa</i> (Wight & Arn.) Harms	Cl	F	Common
ASTERACEAE				
21	<i>Acmella oleracea</i> (L.) R K Jansen	H	RS	Common
22	<i>Ageratum conyzoides</i> (L.) L.	H	RS	Common
23	<i>Blumea lacera</i> (Burm.f.) DC.	H	RS	Common
24	<i>Bidens bipinnata</i> L.	H	RS	Common
25	<i>Centipeda minima</i> (L.) A.Braun & Asch.	S	RS	Common
26	<i>Chromolaena odorata</i> (L.) R.M. King & H. Rob.	S	RS	Common
27	<i>Crassocephalum crepidioides</i> (Benth.) S.Moore	H	F	Common
28	<i>Cyanthillium cinereum</i> (L.) H.Rob.	H	RS	Common
29	<i>Dichrocephala integrifolia</i> (L.f.) Kuntze	H	RS	Rare
30	<i>Erigeron canadensis</i> L.	H	RS	Rare
31	<i>Eclipta prostrata</i> (L.) L.	H	RS	Common
32	<i>Elephantopus scaber</i> L.	H	F	Common
33	<i>Helichrysum luteoalbum</i> (L.) Rchb.	H	RS	Common
34	<i>Mikania micrantha</i> Kunth.	Cl	RS	Common
35	<i>Sonchus wightianus</i> DC.	H	RS	Common
36	<i>Sigesbeckia orientalis</i> L.	H	F	Common
37	<i>Tithonia diversifolia</i> (Hemsl.) A.Gray	S	F	Common
38	<i>Tridax procumbens</i> (L.) L.	H	RS	Common
39	<i>Xanthium strumarium</i> L.	H	RS	Common
BALSAMINACEAE				
40	<i>Impatiens balsamina</i> L.	H	RS	Rare
BEGONIACEAE				
41	<i>Begonia palmata</i> D. Don	H	F	Rare
42	<i>Begonia picta</i> Sm.	H	F	Rare
43	<i>Begonia roxburghii</i> A.DC.	H	F	Rare
BIGNONIACEAE				
44	<i>Pajanelia longifolia</i> (Willd.) K. Schum	T	F	Rare
45	<i>Oroxylum indicum</i> (L.) Benth. ex Kurz	T	F	Rare
46	<i>Heterophragma adenophyllum</i> (Wall ex G. Don) Seem ex Benth. & Hook.f.	T	F	Very rare
BURSERACEAE				
47	<i>Protium serratum</i> (Wall. ex Colebr.) Engl.	T	F	Rare
48	<i>Canarium strictum</i> Roxb.	T	F	Rare
LEGUMINOSAE : CAESALPINIOIDEAE				
49	<i>Bauhinia vahlii</i> Wight & Arn. [Photo -14]	L	HS	Common
50	<i>Bauhinia purpurea</i> L	T	HS	Common
51	<i>Bauhinia variegata</i> L.	T	F	Very Rare

Sl. no.	Name of the plants	Habit	Habitat	Distribution
52	<i>Bauhinia scandens</i> L.[Photo -7]	L	F	Very Rare
53	<i>Senna alata</i> (L.) Roxb.	S	RS	Common
54	<i>Senna occidentalis</i> (L.) Link	H	RS	Common
55	<i>Senna tora</i> (L.) Roxb.	H	RS	Very Common
56	<i>Senna sophera</i> (L.) Roxb.	H	RS	Common
57	<i>Cassia fistula</i> L.	T	RS	Rare
58	<i>Cassia javanica</i> L.	T	RS	Rare
	CALOPHYLLACEAE			
59	<i>Mesua ferrea</i> L.	T	F	Common
	CARYOPHYLLACEAE			
60	<i>Stellaria media</i> (L.) Vill.	H	F	Very Common
	CLEOMACEAE			
61	<i>Cleome gynandra</i> L.	H	RS	Common
62	<i>Crateva religiosa</i> G.Forst.	T	RB	Rare
63	<i>Cleome viscosa</i> L.	H	RS	Common
	CONVOLVULACEAE			
64	<i>Argyrea nervosa</i> (Burm.f.) Bojer	Cl	F	Very Common
65	<i>Cuscuta reflexa</i> Roxb.	Cl	F	Very Common
66	<i>Ipomoea cheirophylla</i> O'Donell	Cl	F	Very Common
67	<i>Ipomoea hederifolia</i> L.	Cl	F	Very Common
68	<i>Ipomoea cairica</i> (L.) Sweet	Cl	F	Very Common
69	<i>Ipomoea purpurea</i> (L.) Roth	Cl	F	Very Common
70	<i>Ipomoea nil</i> (L.) Roth	Cl	F	Very Common
71	<i>Poranopsis paniculata</i> (Roxb.) Roberty	Cl	F	Very Common
	CUCURBITACEAE			
72	<i>Coccinia grandis</i> (L.) Voigt.	Cl	F	Rare
73	<i>Momordica charantia</i> L. [Photo – 21]	Cl	F	Rare
74	<i>Trichosanthes cochinchinensis</i> M.Roem.	Cl	F	Rare
75	<i>Trichosanthes tricuspidata</i> Lour. [Photo – 12]	Cl	F	Rare
	DIPTEROCARPACEAE			
76	<i>Dipterocarpus turbinatus</i> C.F. Gaertn	T	F	Rare
	EUPHORBIACEAE			
77	<i>Acalypha indica</i> L.	H	RS	Rare
78	<i>Croton bonplandianus</i> Baill.	H	RS	Common
79	<i>Croton caudatus</i> Geiseler	S	HS	Common
80	<i>Euphorbia hirta</i> L.	H	RS	Common
81	<i>Mallotus philippensis</i> (Lam.) Müll.Arg.	T	F	Rare
82	<i>Mallotus tetracoccus</i> (Roxb.) Kurz	T	F	Rare
83	<i>Mallotus nepalensis</i> Müll.Arg.			
84	<i>Macaranga denticulata</i> (Blume) Müll.Arg.	T	F	Common
85	<i>Macaranga peltata</i> (Roxb.) Müll.Arg.	T	F	Common
86	<i>Macaranga indica</i> Wight	T	F	Common
87	<i>Mallotus nudiflorus</i> (L.) Kulju & Welzen	T	F	Common
	LEGUMINOSAE : FABOIDEAE			
88	<i>Aeschynomene aspera</i> L.	S	RB	Rare
89	<i>Aeschynomene indica</i> L.	H	SS	Rare
90	<i>Alysicarpus vaginalis</i> (L.) DC.	H	RS	Common
91	<i>Butea monosperma</i> (Lam.) Taub.	T	F	Common

Sl. no.	Name of the plants	Habit	Habitat	Distribution
92	<i>Centrosema pubescens</i> Benth.	Cl	RS	Rare
93	<i>Crotolaria pallida</i> Aiton	S	RS	Common
94	<i>Desmodium gangeticum</i> (L.) DC.	S	RS	Common
95	<i>Desmodium heterocarpon</i> (L.) DC.	S	RS	Common
96	<i>Desmodium heterophyllum</i> (Willd.) DC.	H	RS	Common
97	<i>Hylodesmum podocarpum</i> subsp. <i>oxyphyllum</i> (DC.) H. Ohashi & R.R. Mill	S	HS	Common
98	<i>Desmodium triflorum</i> (L.) DC.	H	HS	Common
99	<i>Derris pachycarpa</i> Merr.	S	HS	Rare
100	<i>Erythrina stricta</i> Roxb.	T	RS	Common
101	<i>Mucuna pruriens</i> (L.) DC.	L	F	Common
102	<i>Indigofera tinctoria</i> L.	S	HS	Rare
103	<i>Indigofera zollingeriana</i> Miq. [Photo – 6]	T	F	Rare
104	<i>Mucuna monosperma</i> Roxb. ex Wight	Cl	F	Rare
105	<i>Caesalpinia bonduc</i> (L.) Roxb.	S	HS	Common
	FAGACEAE			
106	<i>Castanopsis indica</i> (Roxb. ex Lindl.) A. DC.	T	F	Rare
107	<i>Castanopsis lanceifolia</i> (Oerst.) Hickel & A. Camus	T	F	Rare
108	<i>Quercus semiserrata</i> Roxb.	T	F	Rare
	GESNERIACEAE			
109	<i>Rhynchosyche ellipticum</i> (Wall. ex D. Dietr.) A. DC. [Photo – 18]	S	F	Very Common
	LAMIACEAE			
110	<i>Anisomeles indica</i> (L.) Kuntze	H	F	Common
111	<i>Callicarpa tomentosa</i> (L.) L.	T	F	Common
112	<i>Clerodendrum glandulosum</i> Lindl.	S	F	Common
113	<i>Clerodendrum hastatum</i> (Roxb.) Lindl.	S	F	Rare
114	<i>Clerodendrum indicum</i> (L.) Kuntze	S	F	Common
115	<i>Clerodendrum infortunatum</i> L.	H	RS	Very Common
116	<i>Gmelina arborea</i> Roxb.	T	F	Rare
117	<i>Holmskioldia sanguinea</i> Retz.	S	F	Common
118	<i>Rothea farinosa</i> (Roxb.) Govaerts	T	F	Rare
119	<i>Rothea serrata</i> (L.) Steane & Mabb.	S	HS	Common
120	<i>Tectona grandis</i> L.f.	T	F	Common
	LAURACEAE			
121	<i>Actinodaphne obovata</i> (Nees) Blume	T	F	Rare
122	<i>Cinnamomum bejolghota</i> (Buch.-Ham.) Sweet	T	F	Rare
123	<i>Litsea glutinosa</i> (Lour.) C.B. Rob.	T	F	Rare
	LECYTHIDACEAE			
124	<i>Careya arborea</i> Roxb.	T	F	Rare
	LORANTHACEAE			
125	<i>Dendrophthoe falcata</i> (L.f.) Ettingsh.	H	P	Rare
	LYTHRACEAE			
126	<i>Duabanga grandiflora</i> (Roxb. ex DC.) Walp.	T	F	Common
127	<i>Lagerstroemia parviflora</i> Roxb.	T	F	Rare
128	<i>Lagerstroemia speciosa</i> (L.) Pers.	T	F	Rare
	MALVACEAE			
129	<i>Abelmoschus moschatus</i> Medik.	H	F	Common

Sl. no.	Name of the plants	Habit	Habitat	Distribution
130	<i>Abroma augusta</i> (L.) L.f. [Photo – 15]	S	F	Rare
131	<i>Abutilon indicum</i> (Link) Sweet	H	RS	Common
132	<i>Firmiana simplex</i> (L.) W.Wight	T	F	Common
133	<i>Sida acuta</i> Burm.f	H	RS	Common
134	<i>Sida cordifolia</i> L..	H	RS	Rare
135	<i>Sida rhombifolia</i> L.	H	RS	Rare
136	<i>Sterculia villosa</i> Roxb.	T	F	Common
137	<i>Urena lobata</i> L.	H	RS	Common
	MELASTOMATACEAE			
138	<i>Medinilla assamica</i> (C.B. Clarke) C. Chen [Photo – 11]	S	F	Rare
139	<i>Melastoma malabathricum</i> L.	S	RS	Common
140	<i>Osbeckia nepalensis</i> Hook.	S	HS	Rare
141	<i>Osbeckia stellata</i> Buch.-Ham. ex D.Don			
	MELIACEAE			
142	<i>Aphanamixis polystachya</i> (Wall.) R. Parker	T	HS	Rare
143	<i>Dysoxylum gotadhora</i> (Buch.-Ham.) Mabb.	T	HS	Rare
144	<i>Melia azedarach</i> L.	T	HS	Common
145	<i>Toona ciliata</i> M Roem.	T	F	Common
	MENISPERMACEAE			
146	<i>Tinospora crispa</i> (L.) Hook.f. & Thomson	L	F	Common
	LEGUMINOSAE : MIMOSAOIDEAE			
147	<i>Acacia concinna</i> DC.	T	F	Common
148	<i>Vachellia farnesiana</i> (L.) Wight & Arn.	T	F	Common
149	<i>Senegalia pennata</i> (L.) Maslin	T	F	Common
150	<i>Albizia amara</i> (Roxb.) Boivin	T	F	Common
151	<i>Albizia lebbek</i> (L.) Benth.	T	F	Common
152	<i>Albizia lucidor</i> (Steud.) I.C. Nielsen	T	F	Common
153	<i>Albizia odoratissima</i> (L.f.)Benth.	T	F	Common
154	<i>Albizia procera</i> (Roxb.) Benth.	T	F	Common
155	<i>Albizia saman</i> (Jacq.) Merr.	T	F	Common
156	<i>Mimosa diplotricha</i> Sauvalle	S	RS	Common
157	<i>Mimosa pudica</i> L.	H	RS	Common
	MORACEAE			
158	<i>Artocarpus chama</i> Buch.-Ham.	T	F	Rare
159	<i>Artocarpus lacucha</i> Roxb. ex Buch.-Ham.	T	F	Rare
160	<i>Ficus auriculata</i> Lour.	T	F	Common
161	<i>Ficus benjamina</i> L.	T	F	Rare
162	<i>Ficus hispida</i> L.f.	T	F	Common
163	<i>Ficus hirta</i> Vahl	T	F	Rare
164	<i>Ficus racemosa</i> L.	T	F	Common
165	<i>Ficus religiosa</i> L.	T	F	Common
166	<i>Ficus benghalensis</i> L.	T	F	Common
167	<i>Ficus elastica</i> Roxb. ex Hornem.	T	F	Common
168	<i>Ficus semicordata</i> Buch.-Ham. ex Sm.	T	F	Common
	MYRTACEAE			
169	<i>Syzygium cumini</i> (L.) Skeels	T	F	Common
	OLACACEAE			
170	<i>Olex acuminata</i> Wall. ex Benth.	S	F	Rare

Sl. no.	Name of the plants	Habit	Habitat	Distribution
	OLEACEAE			
171	<i>Jasminum multiflorum</i> (Burm.f.) Andrews [Photo -17]	Cl	F	Rare
	ONAGRACEAE			
172	<i>Ludwigia hyssopifolia</i> (G.Don) Exell	H	SS	Common
173	<i>Ludwigia octovalvis</i> (Jacq.) P.H.Raven	H	SS	Rare
174	<i>Ludwigia prostrata</i> Roxb.	H	SS	Common
	PENTAPHYLLACEAE			
175	<i>Eurya acuminata</i> DC.	S	F	Rare
	PHYLLANTHACEAE			
176	<i>Antidesma acidum</i> Retz.	S	F	Rare
177	<i>Bridelia retusa</i> (L.) A. Juss.	T	HS	Rare
178	<i>Phyllanthus amarus</i> Schumach. & Thonn.	H	RS	Common
179	<i>Phyllanthus emblica</i> L.	T	F	Rare
	PIPERACEAE			
180	<i>Peperomia pellucida</i> (L.) Kunth	H	RS	Common
181	<i>Piper acutistigmum</i> C.DC. [Photo -5]	Cl	F	Common
182	<i>Piper thomsonii</i> (C.DC.) Hook.f.	Cl	F	Rare
	POLYGONACEAE			
183	<i>Persicaria barbata</i> (L.) H.Hara	H	F	Common
184	<i>Persicaria chinensis</i> (L.) H.Gross	Cl	F	Common
185	<i>Persicaria hydropiper</i> (L.) Dilarbre	H	SS	Common
186	<i>Persicaria strigosa</i> (R.Br.) Nakai	H	F	Common
187	<i>Polygonum perfoliatum</i> L.	Cl	F	Rare
188	<i>Polygonum plebeium</i> R.Br.	H	F	Common
189	<i>Rumex maritimus</i> L.	H	RS	Common
	RHAMNACEAE			
190	<i>Ziziphus jujuba</i> Mill.	T	F	Common
	RUBIACEAE			
191	<i>Cephalanthus occidentalis</i> L.	T	F	Rare
192	<i>Dentella repens</i> (L.) J.R.Forst. & G.Forst.	H	RS	Common
193	<i>Haldina cordifolia</i> (Roxb.) Ridsdale	T	F	Rare
194	<i>Mussaenda glabra</i> Vahl	S	F	Common
195	<i>Oldenlandia diffusa</i> (Willd.) Roxb.	H	RS	Common
196	<i>Mussaenda macrophylla</i> Wall.	S	F	Rare
197	<i>Mussaenda roxburghii</i> Hook.f.	S	F	Common
198	<i>Paederia foetida</i> L.	Cl	F	Common
199	<i>Paederia scandens</i> (Lour.) Merr.	Cl	F	Common
200	<i>Spermacoce hispida</i> L.	H	RS	Common
	RUTACEAE			
201	<i>Zanthoxylum acanthopodium</i> DC.	T	F	Rare
202	<i>Zanthoxylum oxyphyllum</i> Edgew.	T	F	Rare
203	<i>Zanthoxylum rhetsa</i> (Roxb.) DC.	T	F	Rare
	SAPINDACEAE			
204	<i>Xerospermum noronhianum</i> Blume	T	F	Common
	SOLANACEAE			
205	<i>Nicotiana plumbaginifolia</i> Viv.	H	RS	Rare
206	<i>Physalis minima</i> L.	H	RS	Rare
207	<i>Solanum aculeatissimum</i> Jacq.	H	RS	Common

Sl. no.	Name of the plants	Habit	Habitat	Distribution
208	<i>Solanum americanum</i> Mill.	H	RS	Common
209	<i>Solanum indicum</i> L.	H	HS	Common
210	<i>Solanum torvum</i> Sw.	S	HS	Common
	THEACEAE			
211	<i>Camellia kissi</i> Wall.	S	F	Rare
212	<i>Schima wallichii</i> Choisy	T	HS	Rare
	VERBENACEAE			
213	<i>Lantana camara</i> L.	S	RS	Common
214	<i>Lippia alba</i> (Mill.) N.E.Br. ex Britton & P. Wilson	S	RS	Rare
215	<i>Phyla nodiflora</i> (L.) Greene	H	RS	Rare
216	<i>Stachytarpheta jamaicensis</i> (L.) Vahl	H	RS	Common
	VITACEAE			
217	<i>Cissus adnata</i> Roxb.	Cl	F	Common
218	<i>Cayratia trifolia</i> (L.) Domin	Cl	F	Very common
219	<i>Leea asiatica</i> (L.) Ridsdale	S	F	Common
220	<i>Leea indica</i> (Burm.f.) Merr.	S	F	Very common
221	<i>Tetrastigma pedunculare</i> (Wall. ex Lawson) Planch.	Cl	F	Rare
	URTICACEAE			
222	<i>Boehmeria macrophylla</i> Hornem. [Photo -13]	S	HS	Rare
223	<i>Debregeasia longifolia</i> (Burm.f) Wedd.	S	HS	Rare
224	<i>Elatostema sessile</i> J.R. Forst. & G. Frost.	H	SS	Rare
225	<i>Pouzolzia hirta</i> Blume ex Hassk	H	RS	Common
226	<i>Sarcochlamys pulcherrima</i> Gaudich. [Photo -19]	S	HS	Common
227	<i>Girardinia diversifolia</i> (Link) Friis	S	F	Common
	MONOCOTYLEDONS			
	ARACEAE			
228	<i>Alocasia cucullata</i> (Lour.) G. Don	H	HS	Rare
229	<i>Colocasia fallax</i> Schott	H	F	Rare
230	<i>Homalomena aromatica</i> (Spreng.) Schott [Photo -16]	H	HS	Rare
231	<i>Pothos scandens</i> L.	Cl	F	Common
232	<i>Remusatia pumila</i> (D. Don) H. Li & A. Hay [Photo -4]	H	HS	Common
233	<i>Remusatia hookeriana</i> Schott	H	HS	Rare
234	<i>Rhaphidophora decursiva</i> (Roxb.) Schott	Cl	F	Common
	ARECACEAE			
235	<i>Arenga pinnata</i> (Wurmb) Merr. [Photo -25]	PA	F	Rare
236	<i>Caryota urens</i> L.	PA	F	Common
237	<i>Licuola spinosa</i> Wurmb [Photo -22]	PA	F	Common
	COSTACEAE			
238	<i>Cheilocostus speciosus</i> (J. Koenig) C.D. Specht. [Photo -20]	H	F	Rare
	CYPERACEAE			
239	<i>Carex dimorpholepis</i> Steud.	SE	RS	Common
240	<i>Cyperus compactus</i> Retz.	SE	RS	Common
241	<i>Cyperus compressus</i> L.	SE	RS	Common
242	<i>Cyperus cyperinus</i> (Retz.) Suringar	SE	RS	Common
243	<i>Fimbristylis eragrostis</i> (Nees) Hance	SE	RS	Common
244	<i>Kyllinga brevifolia</i> Rottb.	SE	RS	Common
	DIOSCOREACEAE			

Sl. no.	Name of the plants	Habit	Habitat	Distribution
245	<i>Dioscorea alata</i> L.	Cl	F	Common
246	<i>Dioscorea bulbifera</i> L.	Cl	F	Common
247	<i>Dioscorea deltoidea</i> Wall. ex Griseb.	Cl	F	Common
248	<i>Dioscorea esculenta</i> (Lour.) Burkill	Cl	F	Common
249	<i>Dioscorea hamiltonii</i> Hook.f.	Cl	F	Common
250	<i>Dioscorea pentaphylla</i> L. [Photo -3]	Cl	F	Rare
	LILIACEAE			
251	<i>Asparagus racemosus</i> Willd.	Cl	F	Rare
	MARANTACEAE			
252	<i>Phrynium pubinerve</i> Blume [Photo -9]	H	F	Rare
	MUSACEAE			
253	<i>Musa balbisiana</i> Colla	H	F	Very common
	ORCHIDACEAE			
254	<i>Arundina graminifolia</i> (D.Don) Hochr. [Photo -8, 23]	S	HS	Common
255	<i>Dendrobium densiflorum</i> Lindl.	H	EP	Rare
256	<i>Papilionanthe teres</i> (Roxb.) Schltr.	H	EP	Common
257	<i>Rhynchosyilis retusa</i> (L.) Blume	H	EP	Common
	PANDANACEAE			
258	<i>Pandanus odorifer</i> (Forssk.) Kuntze [Photo -2]	T	F	Rare
	POACEAE			
259	<i>Arundo donax</i> L.	G	SS	Common
260	<i>Bambusa balcooa</i> Roxb.	B	F	Common
261	<i>Bambusa cacharensis</i> R.B. Majumdar	B	F	Rare
262	<i>Bambusa tulda</i> Roxb.	B	F	Common
263	<i>Cynodon dactylon</i> (L.) Pers.	G	RS	Common
264	<i>Eleusine indica</i> (L.) Gaertn	G	RS	Common
265	<i>Eragrostis pilosa</i> (L.) P.Beauv	G	SS	Common
266	<i>Imperata cylindrica</i> (L.) Raeusch.	G	SS	Common
267	<i>Melocanna baccifera</i> (Roxb.) Kurz	B	F	Common
268	<i>Oplismenus compositus</i> (L.) P.Beauv.	G	RS	Common
269	<i>Panicum brevifolium</i> L.	G	RS	Common
270	<i>Phragmites karka</i> (Retz.) Trin. ex Steud	G	RS	Common
271	<i>Schizostachyum dullooa</i> (Gamble) R.B.Majumdar	B	F	Common
272	<i>Setaria palmifolia</i> (J.Koenig) Stapf	G	RS	Common
273	<i>Thysanolaena latifolia</i> (Roxb. ex Hornem.) Honda	G	RS	Common
	SMILACACEAE			
274	<i>Smilax china</i> L.	Cl	F	Rare
275	<i>Smilax perfoliata</i> Lour.	Cl	F	Rare
276	<i>Smilax zeylanica</i> L.	Cl	F	Rare
	STEMONACEAE			
277	<i>Stemona tuberosa</i> Lour.	Cl	F	Rare
	ZINGIBERACEAE			
278	<i>Hedychium coccineum</i> Buch-Ham ex Sm.	H	F	Rare
279	<i>Globba clarkei</i> Baker	H	F	Rare
280	<i>Globba multiflora</i> Wall. ex Baker	H	F	Rare
281	<i>Globba racemosa</i> Sm.	H	F	Rare