

## THE VASCULAR PLANT FLORA OF ABANDONED PLANTATIONS IN SINGAPORE III: LENTOR FOREST

Louise Neo\*, Alex T. K. Yee, K. Y. Chong, T. C. Zeng and Hugh T. W. Tan\*

Department of Biological Sciences, National University of Singapore

14 Science Drive 4, Singapore 117543, Republic of Singapore

(\*Corresponding authors: [neolouise@gmail.com](mailto:neolouise@gmail.com); [dbstwt@nus.edu.sg](mailto:dbstwt@nus.edu.sg))

**ABSTRACT.** — A checklist of vascular plant species was compiled for Lentor Forest, a patch of secondary forest located at the junction of Yio Chu Kang Road and Lentor Drive on Singapore Island. In 2012, we sampled five 20 × 20 m vegetation plots within the abandoned rubber plantation region of Lentor Forest. Within each plot, we recorded all vascular plant species and measured the diameter at breast height (DBH) of all woody stems with a DBH ≥ 5 cm. The resultant species list was supplemented with information from another survey conducted in 2013. We recorded 126 species from 65 families. Eighty-four of the recorded species are native, 39 are exotic, and three are cryptogenic. Of the native species, 13 are nationally critically endangered (five of which are likely to have persisted from cultivated rather than native stock), six are nationally endangered, and 16 are nationally vulnerable. We note a new record of an exotic casual species for Singapore: *Merremia vitifolia*, a climber from the family Convolvulaceae. Among the measured woody stems, *Hevea brasiliensis* was found to occur most frequently on average.

**KEY WORDS.** — checklist, conservation, flora, Lentor Drive, Yio Chu Kang Road, secondary forest

### INTRODUCTION

Lentor Forest (01°23'3"N, 103°50'3"E) is a secondary forest that has regenerated on land that was once used for cultivation. It is located in central Singapore, at the junction of Yio Chu Kang Road and Lentor Drive, and it is bounded by private housing estates (Figs. 1, 2A, 2B). Based on Google Earth® satellite images, the total area of Lentor Forest is estimated to be 26.3 ha. Lentor Forest is slated to be cleared for residential developments in the near future (URA, 2008).



Fig. 1. Lentor Forest and nearby landmarks (Google, 2012). The red outline shows the extent of the forest at 14 Jun.2012 (date that the satellite image was acquired). The locations of surveyed vegetation plots are represented by yellow dots labelled LD1–LD5.

Lentor Forest was part of a rubber plantation from the 1920s to the 1970s (Surveyor-General, Federated Malay States and Straits Settlements, 1924; Survey Production Centre, South East Asia, 1945; Surveyor-General, Malaya, 1953; Directorate of National Mapping, Malaysia, 1964, 1966; Chief Surveyor, Singapore, 1969; Ministry of Defence, Singapore, 1975). In the early 1980s, the vegetation in the western part of Lentor Forest was classified as sundry tree cultivation, while the eastern part remained rubber tree-dominated (Singapore Mapping Unit, 1982). From the late 1980s onwards, the vegetation of Lentor Forest was categorised as sundry tree cultivation (Singapore Mapping Unit, 1987, 1992, 2000, 2008).

Despite the fact that secondary forests are disturbed and sometimes degraded forests, they can be refuges and resource pools for local biodiversity (Turner & Corlett, 1996; McShea et al., 2009; Edwards et al., 2011). Secondary forests in urban Singapore are able to support populations of wildlife such as birds, butterflies, and frogs (Koh & Sodhi, 2004; Castelletta et al., 2005; Bickford et al., 2010; K. Y. Chong, S. Teo, and H. T. W. Tan, unpublished data). This paper aims to provide an accessible working checklist of the vascular plant species of Lentor Forest, which may be useful for assessing the conservation value of the forest.

## MATERIAL AND METHODS

In 2012, we surveyed five vegetation plots of 20 × 20 m each within the abandoned rubber plantation region of Lentor Forest. The extent of the rubber plantations was determined by comparing topographic maps of Singapore against the latest Google Earth satellite image of the forest (Google, 2012). The five plots were spaced at least 60 m apart from one another and located at least 40 m from the forest edge. The location of each plot was randomly derived using the fTools v. 0.6.1 plugin for the Quantum GIS software v. 1.6.0 (Quantum GIS Development Team, 2010). Within each plot, all species of vascular plants were recorded. Where species could not be identified in the field, specimens were collected for their identities to be further determined in the laboratory or in the Singapore Botanic Gardens Herbarium (SING). To estimate species dominance, stem diameter at breast height (DBH; measured at 1.3 m above the ground) was recorded for all woody stems with DBH ≥ 5 cm. Palms (Arecaceae) were not measured owing to the difficulty in measuring the true stems for some species. In addition to the vegetation plots, we conducted some opportunistic exploration of the forest in the year 2013, and recorded additional species that were found then.

A checklist of all vascular plant species recorded from Lentor Forest was compiled. The nomenclature and national status category of each species mostly follow and update those of Chong et al. (2009). A species accumulation curve was constructed from the five sampled plots to determine how the number of recorded vascular plant species increased with sampling effort. The ‘specaccum’ function implemented in the vegan v. 2.0-2 package of the statistical software R v. 2.14.1 (R Development Core Team, 2011) was used. The approximate total number of species in the species pool, i.e., including unseen or undetected species, was calculated using the ‘specpool’ function in the vegan v. 2.0-2 package (R Development Core Team, 2011).

## RESULTS AND DISCUSSION

A total of 126 vascular plant species from 65 families was recorded. The species and their national conservation status categories are provided in Appendix 1. Based on Chong et al. (2009), 84 of the recorded species are native, 39 are exotic, and three are cryptogenic (equivalent to the “Weed of Uncertain Origin” category in Chong et al. [2009]). Of the native species, 13 are nationally critically endangered, six are nationally endangered, and 16 are nationally vulnerable (Table 1). Of the 13 critically endangered species, five are likely to have persisted from cultivation and may not be of local provenance. They are: *Baccaurea motleyana*, *Calophyllum inophyllum*, *Epipremnum pinnatum*, *Gnetum gnemon* var. *gnemon*, and *Nephelium lappaceum*.

Of the 39 non-native species, two are not found in the checklist of Chong et al. (2009): *Dioscorea alata* and *Merremia vitifolia*. *Dioscorea alata* was listed by Keng et al. (1998), but was overlooked by Chong et al. (2009). It is likely to have originated in continental East Asia but was introduced to Singapore through local cultivation of its tubers as a supplementary source of starch (Burkhill, 1951; Keng et al., 1998). *Merremia vitifolia* (Fig. 2D), on the other hand, has not previously been recorded in Singapore to our knowledge (George Staples, pers. comm.). It is found in disturbed sites, such as open habitats and vegetation edges, and in regions with at least a weak dry season, from India through northern peninsular Malaysia to Indo-China (van Ooststroom, 1953). It is used medicinally (Burkhill, 1966). We classify these two species as “casual” according to the definition of Chong et al. (2009).

Table 1. Summary of the national status categories of the vascular plants of Lentor Forest.

Nativeness	National Status Category	No. of Species	Percentage of All Species	Percentage of All Native Species
Exotic	Naturalised	16	12.70	—
	Casual	14	11.11	—
	Cultivated only	8	6.35	—
	Not assessed	1	0.79	—
	<b>Total</b>	<b>39</b>	<b>30.95</b>	—
Cryptogenic	Cryptogenic	3	2.38	—
	<b>Total</b>	<b>3</b>	<b>2.38</b>	—
Native	Critically endangered (persistence from cultivation)	5	3.97	5.95
	Critically endangered	8	6.35	9.52
	Endangered	6	4.76	7.14
	Vulnerable	16	12.70	19.05
	Common	49	38.89	58.33
	<b>Total</b>	<b>84</b>	<b>66.67</b>	—

When the number of species recorded from only the surveyed plots was plotted against sampling effort, it was found that the species accumulation curve did not approach an asymptote (Fig. 3). However, based on the most conservative estimate (Jackknife 2), the vegetation plots sampled 70% of the total number of species, which suggests that species richness estimators may provide a fair assessment of the total number of species in the plots. These estimates of the total number of species range from 116 to 143 (Table 2).

The species for which we measured basal area are presented in Appendix 2, and are ordered by the mean number of stems measured per plot, except for species for which only a single individual was measured. The species found to occur most frequently was rubber, *Hevea brasiliensis*, which averaged 12.8 stems per plot and made up 2.0% of the basal area measured in a plot on average. The most dominant species by basal area was found to be albizia, *Falcataria moluccana*, which made up 17.6% of the basal area of a plot on average and averaged 0.6 stems per plot.

Species which are remnants from past sundry cultivation (e.g., species likely to have been cultivated for food such as starfruit, *Averrhoa carambola*; durian, *Durio zibethinus*; rambutan, *Nephelium lappaceum*, etc.) dominate the tree community in terms of stem count. However, we also recorded trees of at least 5 cm DBH of some native species typically found in native-dominated secondary forests in Singapore (e.g., *Elaeocarpus petiolatus*, *Girouneria nervosa*, *Syzygium borneense*, etc.).

Native species made up about 67% of all species recorded. This includes species such as *Acacia concinna* and *Angiopteris evecta* which occur in relatively high abundances along a freshwater stream that cuts through the forest (Fig. 2C). We observed in the forest understorey species from genera characteristic of late successional (tall) secondary forests in Singapore, such as *Calophyllum*, *Elaeocarpus*, and *Litsea*, as well as species from the large-seeded, animal-dispersed families characteristic of old growth forests, such as Myristicaceae and Sapotaceae (Corlett, 1991). These species have probably either persisted in spite of the changes in land use or have been recently dispersed from neighbouring forest patches.

Table 2. Approximate true number of species calculated based on data from the five sampled plots, using four commonly used species richness estimators.

Estimator	Chao	Jackknife 1	Jackknife 2	Bootstrap
Predicted number of species	129.17	132.20	143.45	116.04
Proportion of the observed number of species out of the total predicted number of species	0.78	0.76	0.70	0.87

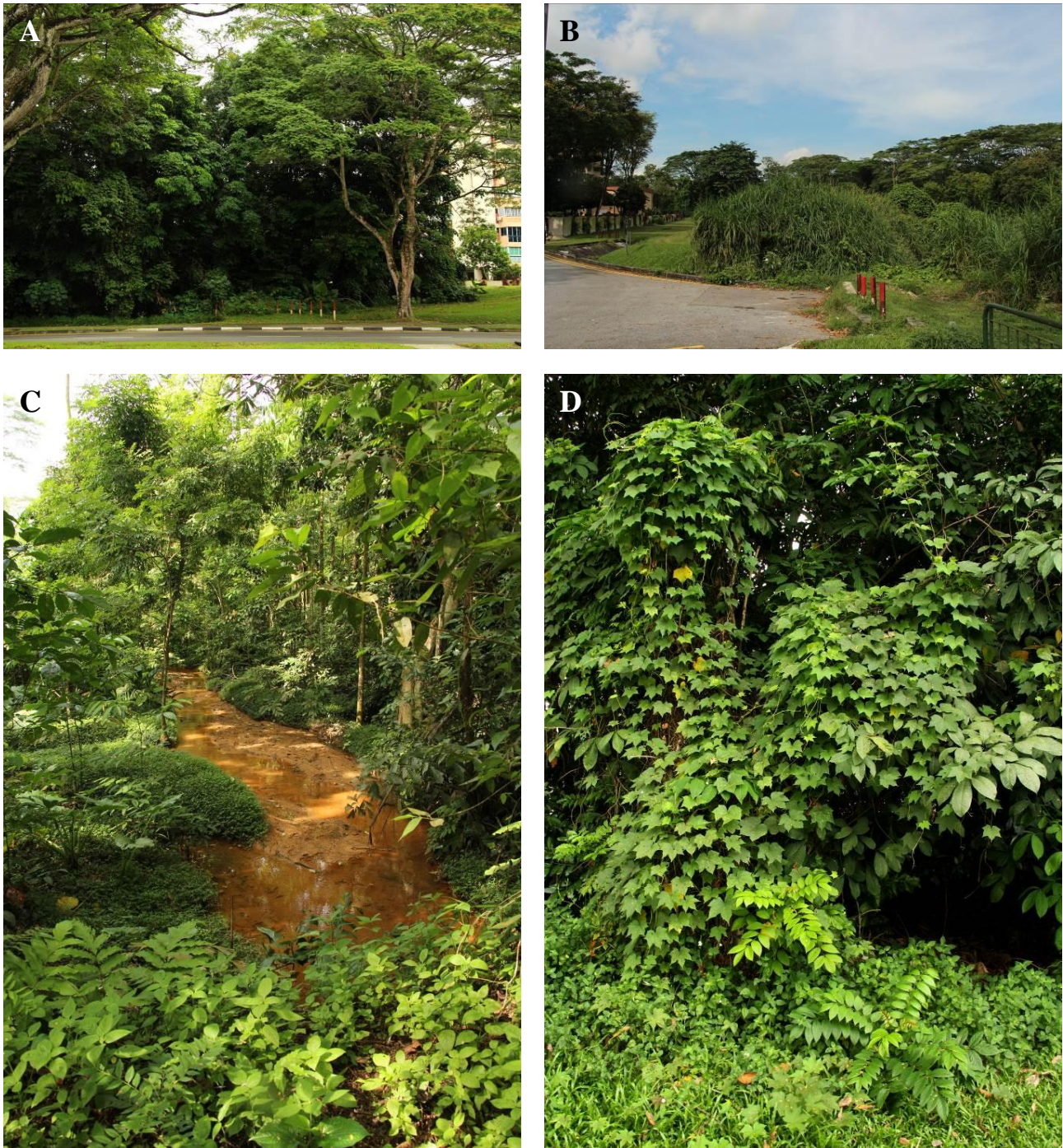


Fig. 2. Some characteristic aspects of Lentor Forest as seen from A, Yio Chu Kang Road; B, Lentor Loop; C, A freshwater stream cutting through the forest; D, *Merremia vitifolia*, a climber with palmately lobed leaves (indicated by a solid red arrow), is a new record for Singapore, and can be found growing in high abundance at the fringes of the forest. (Photographs by: Louise Neo).

## CONCLUSIONS

The vascular plant species composition of Lentor Forest is a product of the cultivation legacy of the forest, and the recent establishment or persistence of native secondary forest species despite the drastic land use change. Rubber trees were recorded at the highest frequency, despite the abandonment of the rubber plantations about 40 years ago. About 24% of the recorded species are nationally threatened.

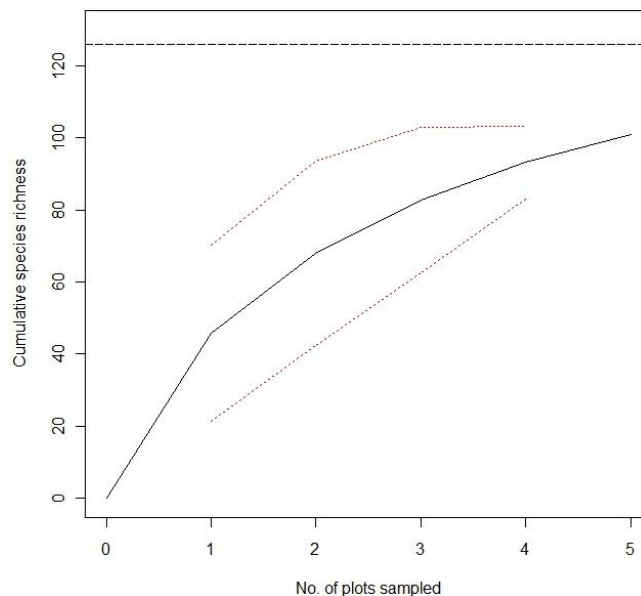


Fig. 3. Species accumulation curve showing the cumulative increase in the number of species recorded from the five sampled plots. The dotted lines represent 95% confidence intervals of the curve. The horizontal dashed line represents the total number of species recorded from Lentor Forest (126 species).

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## APPENDIX 1

Checklist of the vascular plant flora of Lentor Forest. Nomenclature and conservation status categories follow those of Chong et al. (2009) with some modifications based on our observations. "Weed of Uncertain Origin" of Chong et al. (2009) is cryptogenic in this list. Species are grouped by family and arranged in alphabetical order.

S/No.	Species	Nativeness	National Status
<b>ACANTHACEAE</b>			
1.	<i>Asystasia gangetica</i> (L.) T.Anderson subsp. <i>micrantha</i>	Exotic	Naturalised
<b>ADIANTACEAE</b>			
2.	<i>Adiantum latifolium</i> Lam.	Exotic	Naturalised
<b>ANACARDIACEAE</b>			
3.	<i>Mangifera indica</i> L.	Exotic	Casual
<b>ANNONACEAE</b>			
4.	<i>Artabotrys maingayi</i> Hook.f. & Thoms.	Native	Critically endangered
5.	<i>Artabotrys suaveolens</i> (Blume) Blume	Native	Endangered
<b>AQUIFOLIACEAE</b>			
6.	<i>Ilex cymosa</i> Blume	Native	Common
<b>ARACEAE</b>			
7.	<i>Aglaonema commutatum</i> Schott	Exotic	Casual
8.	<i>Alocasia macrorrhizos</i> (L.) G.Don	Exotic	Naturalised
9.	<i>Epipremnum aureum</i> (Linden ex André) Bunting	Exotic	Casual
10.	<i>Epipremnum pinnatum</i> (L.) Engl.	Native	Critically endangered (persistence from cultivation)
11.	<i>Philodendron erubescens</i> K.Koch & Augustin	Exotic	Cultivated only
12.	<i>Syngonium podophyllum</i> Schott	Exotic	Naturalised
<b>ARALIACEAE</b>			
13.	<i>Arthropodium diversifolium</i> Blume	Native	Common
<b>ARECACEAE</b>			
14.	<i>Caryota mitis</i> Lour.	Native	Common
15.	<i>Elaeis guineensis</i> Jacq.	Exotic	Cultivated only
16.	<i>Livistona rotundifolia</i> (Lam.) Mart.	Exotic	Cultivated only
17.	<i>Ptychosperma macarthurii</i> (H.Wendl. ex anon.) H.Wendl. ex Hook.f.	Exotic	Naturalised
<b>ASPARAGACEAE</b>			
18.	<i>Dracaena fragrans</i> (L.) Ker Gawl.	Exotic	Casual
19.	<i>Dracaena surculosa</i> Lindl.	Exotic	Cultivated only
<b>ASPLENIACEAE</b>			
20.	<i>Asplenium nidus</i> L.	Native	Common
<b>ASTERACEAE</b>			
21.	<i>Melanthera biflora</i> (L.) Wild	Native	Common
22.	<i>Mikania micrantha</i> Kunth	Exotic	Naturalised
<b>BIGNONIACEAE</b>			
23.	<i>Spathodea campanulata</i> P.Beauv.	Exotic	Naturalised
<b>BLECHNACEAE</b>			
24.	<i>Stenochlaena palustris</i> (Burm.f.) Bedd.	Native	Common
<b>BORAGINACEAE</b>			
25.	<i>Ehretia microphylla</i> Lam.	Exotic	Naturalised

S/No.	Species	Nativeness	National Status
<b>CALOPHYLLACEAE</b>			
26.	<i>Calophyllum ferrugineum</i> Ridl.	Native	Common
27.	<i>Calophyllum inophyllum</i> L.	Native	Critically endangered (persistence from cultivation)
<b>CANNABACEAE</b>			
28.	<i>Girroniera nervosa</i> Planch.	Native	Common
<b>CENTROPLACACEAE</b>			
29.	<i>Bhesa paniculata</i> Arn.	Native	Common
<b>CHRYSOBALANACEAE</b>			
30.	<i>Licania splendens</i> (Korth.) Prance	Native	Common
<b>COMBRETACEAE</b>			
31.	<i>Terminalia catappa</i> L.	Native	Common
<b>COMMELINACEAE</b>			
32.	<i>Commelina diffusa</i> Burm.f.	Cryptogenic	Cryptogenic
<b>CONNARACEAE</b>			
33.	<i>Agelaea macrophylla</i> (Zoll.) Leenh.	Native	Critically endangered
<b>CONVOLVULACEAE</b>			
34.	<i>Erycibe tomentosa</i> Blume	Native	Common
35.	<i>Merremia vitifolia</i> (Burm.f.) Hallier f.	Exotic	Casual
<b>CYATHEACEAE</b>			
36.	<i>Cyathea latebrosa</i> (Wall.) Copel.	Native	Vulnerable
<b>DAVALLIACEAE</b>			
37.	<i>Davallia denticulata</i> (Burm.) Mett.	Native	Common
<b>DILLENIAACEAE</b>			
38.	<i>Tetracera indica</i> (Christm. & Panz.) Merr.	Native	Common
<b>DIOSCOREACEAE</b>			
39.	<i>Dioscorea alata</i> L.	Exotic	Casual
<b>DRYOPTERIDACEAE</b>			
40.	<i>Tectaria incisa</i> Cav.	Exotic	Not Assessed
<b>ELAEOCARPACEAE</b>			
41.	<i>Elaeocarpus ferrugineus</i> (Jack) Steud.	Native	Common
42.	<i>Elaeocarpus mastersii</i> King	Native	Common
43.	<i>Elaeocarpus petiolatus</i> (Jack) Wall	Native	Common
<b>EUPHORBIACEAE</b>			
44.	<i>Claoxylon indicum</i> (Reinw. ex Blume) Hassk.	Native	Common
45.	<i>Hevea brasiliensis</i> (Willd. ex A.Juss.) Müll.Arg.	Exotic	Naturalised
46.	<i>Macaranga bancana</i> (Miq.) Mull.Arg.	Native	Common
47.	<i>Macaranga gigantea</i> (Rchb.f. & Zoll.) Müll.Arg.	Native	Common
48.	<i>Macaranga griffithiana</i> Müll.Arg	Native	Vulnerable
49.	<i>Manihot carthagenensis</i> (Jack) Müll.Arg. subsp. <i>glaziovii</i> (Müll.Arg.) Allem	Exotic	Naturalised
<b>FABACEAE</b>			
50.	<i>Acacia concinna</i> (Willd.) DC.	Native	Common
51.	<i>Adenanthera pavonina</i> L.	Exotic	Naturalised
52.	<i>Andira inermis</i> (W.Wright) Kunth ex DC.	Exotic	Casual



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S/No.	Species	Nativeness	National Status
53.	<i>Falcataria moluccana</i> (Miq.) Barneby & J.W.Grimes	Exotic	Naturalised
54.	<i>Spatholobus ferrugineus</i> (Zoll. & Moritzi) Benth.	Native	Common
<b>FLAGELLARIACEAE</b>			
55.	<i>Flagellaria indica</i> L.	Native	Common
<b>GNETACEAE</b>			
56.	<i>Gnetum gnemon</i> L. var. <i>gnemon</i>	Native	Critically endangered (persistence from cultivation)
<b>HELICONIACEAE</b>			
57.	<i>Heliconia psittacorum</i> L.f.	Exotic	Casual
<b>LAMIACEAE</b>			
58.	<i>Callicarpa longifolia</i> Lamk.	Native	Endangered
59.	<i>Clerodendrum laevifolium</i> Blume	Native	Common
60.	<i>Clerodendrum villosum</i> Blume	Native	Vulnerable
61.	<i>Hyptis capitata</i> Jacq.	Exotic	Naturalised
<b>LAURACEAE</b>			
62.	<i>Cinnamomum iners</i> Reinw.	Native	Common
63.	<i>Lindera lucida</i> (Blume) Boerl.	Native	Vulnerable
64.	<i>Litsea elliptica</i> Blume	Native	Common
65.	<i>Litsea firma</i> Hook.f.	Native	Vulnerable
<b>MALVACEAE</b>			
66.	<i>Durio zibethinus</i> L.	Exotic	Casual
67.	<i>Sterculia parvifolia</i> Roxb.	Native	Critically endangered
<b>MARATTIACEAE</b>			
68.	<i>Angiopteris evecta</i> (Forst.) Hoffm.	Native	Vulnerable
<b>MELASTOMATACEAE</b>			
69.	<i>Clidemia hirta</i> (L.) D.Don	Exotic	Naturalised
<b>MENISPERMACEAE</b>			
70.	<i>Fibraurea tinctoria</i> Lour.	Native	Common
<b>MORACEAE</b>			
71.	<i>Artocarpus heterophyllus</i> Lam.	Exotic	Casual
72.	<i>Ficus aurata</i> Miq.	Native	Vulnerable
73.	<i>Ficus fistulosa</i> Reinw. ex Blume	Native	Common
74.	<i>Ficus heteropleura</i> Blume	Native	Common
75.	<i>Ficus microcarpa</i> L.f.	Native	Common
76.	<i>Ficus punctata</i> Lam.	Exotic	Cultivated only
77.	<i>Ficus variegata</i> Blume	Native	Common
<b>MUSACEAE</b>			
78.	<i>Musa</i> cultivar	Exotic	Cultivated only
<b>MYRISTICACEAE</b>			
79.	<i>Gymnacranthera farquhariana</i> (Hook.f. & Thomson) Warb.	Native	Critically endangered
80.	<i>Horsfieldia polyspherula</i> (Hook.f.) J.Sinclair var. <i>sumatrana</i> (Miq.) W.J.de Wilde	Native	Vulnerable
<b>MYRSINACEAE</b>			
81.	<i>Ardisia elliptica</i> Thunb.	Native	Endangered
<b>MYRTACEAE</b>			
82.	<i>Rhodamnia cinerea</i> Jack	Native	Common

S/No.	Species	Nativeness	National Status
83.	<i>Syzygium borneense</i> (Miq.) Miq.	Native	Common
84.	<i>Syzygium grande</i> (Wight) Walp.	Native	Common
85.	<i>Syzygium jambos</i> (L.) Alston	Exotic	Casual
86.	<i>Syzygium lineatum</i> (DC.) Merr. & L.M.Perry	Native	Common
87.	<i>Syzygium polyanthum</i> (Wight) Walp.	Native	Vulnerable
88.	<i>Syzygium zeylanicum</i> (L.) DC.	Native	Common
<b>OCHNACEAE</b>			
89.	<i>Ochna kirkii</i> Oliv.	Exotic	Cultivated only
<b>OLEANDRACEAE</b>			
90.	<i>Nephrolepis auriculata</i> (L.) Trimen	Cryptogenic	Cryptogenic
<b>OXALIDACEAE</b>			
91.	<i>Averrhoa carambola</i> L.	Exotic	Casual
<b>PANDANACEAE</b>			
92.	<i>Pandanus amaryllifolius</i> Roxb.	Exotic	Casual
<b>PASSIFLORACEAE</b>			
93.	<i>Passiflora laurifolia</i> L.	Exotic	Naturalised
94.	<i>Passiflora suberosa</i> L.	Exotic	Naturalised
<b>PHYLLANTHACEAE</b>			
95.	<i>Aporosa benthamiana</i> Hook.f.	Native	Vulnerable
96.	<i>Baccaurea motleyana</i> (Müll.Arg.) Müll.Arg.	Native	Critically endangered (persistence from cultivation)
97.	<i>Bridelia stipularis</i> (L.) Blume	Native	Vulnerable
98.	<i>Bridelia tomentosa</i> Blume	Native	Common
<b>PIPERACEAE</b>			
99.	<i>Piper betle</i> L.	Exotic	Casual
100.	<i>Piper sarmentosum</i> Roxb.	Native	Common
<b>POACEAE</b>			
101.	<i>Centotheca lappacea</i> (L.) Desv.	Native	Critically endangered
102.	<i>Ottochloa nodosa</i> (Kunth) Dandy	Native	Common
<b>PODOCARPACEAE</b>			
103.	<i>Podocarpus rumphii</i> Blume	Exotic	Cultivated only
<b>PTERIDACEAE</b>			
104.	<i>Taenitis blechnoides</i> (Willd.) Sw.	Native	Common
<b>RHIZOPHORACEAE</b>			
105.	<i>Gynotroches axillaris</i> Blume	Native	Common
106.	<i>Pellacalyx axillaris</i> Korth.	Native	Endangered
<b>RUBIACEAE</b>			
107.	<i>Gynochthodes sublancoolata</i> Miq.	Native	Common
108.	<i>Oxyceros bispinosus</i> (Griff.) Tirveng.	Native	Endangered
109.	<i>Oxyceros longiflorus</i> (Lam.) T.Yamazaki	Native	Vulnerable
110.	<i>Timonius wallichianus</i> (Korth.) Valetton	Native	Common
111.	<i>Uncaria cordata</i> (Lour.) Merr.	Native	Endangered
112.	<i>Uncaria lanosa</i> Wall. var. <i>glabrata</i> (Blume) Ridsdale	Native	Critically endangered
<b>RUTACEAE</b>			
113.	<i>Clausena excavata</i> Burm.f.	Native	Common
114.	<i>Melicope lunu-ankenda</i> (Gaertn.) T.G.Hartley	Native	Critically endangered

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S/No.	Species	Nativeness	National Status
<b>SAPINDACEAE</b>			
115.	<i>Nephelium lappaceum</i> L.	Native	Critically endangered (persistence from cultivation)
<b>SAPOTACEAE</b>			
116.	<i>Planchonella obovata</i> (R.Br.) Pierre	Native	Vulnerable
<b>SCHIZAEACEAE</b>			
117.	<i>Lygodium flexuosum</i> (L.) Sw.	Native	Common
118.	<i>Lygodium longifolium</i> (Willd.) Sw.	Native	Vulnerable
<b>SELAGINELLACEAE</b>			
119.	<i>Selaginella intermedia</i> (Bl.) Spring	Native	Vulnerable
<b>SYMPLOCACEAE</b>			
120.	<i>Symplocos fasciculata</i> Zoll.	Native	Vulnerable
<b>THELYPTERIDACEAE</b>			
121.	<i>Christella dentata</i> (Forsk.) Brownsey & Jermy	Cryptogenic	Cryptogenic
122.	<i>Christella subpubescens</i> (Blume) Holttum	Native	Common
123.	<i>Pronephrium triphyllum</i> (Sw.) Holttum	Native	Common
<b>VITACEAE</b>			
124.	<i>Cissus repens</i> Lam.	Native	Critically endangered
125.	<i>Leea indica</i> (Burm.f.) Merr.	Native	Common
<b>VITTARIACEAE</b>			
126.	<i>Vittaria elongata</i> Sw.	Native	Common

## APPENDIX 2

Mean percentage basal area per plot of sub-canopy and canopy species sampled from Lentor Forest. Species are arranged in descending order of the mean number of stems per plot, except for species with only one individual found out of all the plots, which are arranged in decreasing order of stem size.

S/No.	Species	Mean Percentage Basal Area per Plot $\pm$ Standard Error of the Mean	Mean No. of Stems per Plot $\pm$ Standard Error of the Mean
1.	<i>Hevea brasiliensis</i>	1.97 $\pm$ 0.53	12.80 $\pm$ 7.23
2.	<i>Spathodea campanulata</i>	8.28 $\pm$ 2.41	5.60 $\pm$ 2.30
3.	<i>Nephelium lappaceum</i>	1.12 $\pm$ 0.64	3.40 $\pm$ 2.46
4.	<i>Ficus fistulosa</i>	0.63 $\pm$ 0.30	2.60 $\pm$ 0.60
5.	<i>Cinnamomum iners</i>	0.36 $\pm$ 0.15	2.00 $\pm$ 0.63
6.	<i>Averrhoa carambola</i>	0.73 $\pm$ 0.26	1.60 $\pm$ 1.60
7.	<i>Ficus microcarpa</i>	8.93 $\pm$ 5.86	0.80 $\pm$ 0.80
8.	<i>Clerodendrum laevifolium</i>	0.24 $\pm$ 0.05	0.60 $\pm$ 0.60
9.	<i>Falcataria moluccana</i>	17.61 $\pm$ 8.06	0.60 $\pm$ 0.60
10.	<i>Baccaurea motleyana</i>	0.39 $\pm$ 0.10	0.60 $\pm$ 0.40
11.	<i>Andira inermis</i>	0.20 $\pm$ 0.05	0.40 $\pm$ 0.40
12.	<i>Durio zibethinus</i>	0.15 $\pm$ 0.02	0.40 $\pm$ 0.40
13.	<i>Syzygium grande</i>	1.72 $\pm$ 1.38	0.40 $\pm$ 0.40
14.	<i>Adenantha pavonina</i>	0.72 $\pm$ 0.57	0.40 $\pm$ 0.24
15.	<i>Arthropodium diversifolium</i>	0.64 $\pm$ 0.34	0.40 $\pm$ 0.24
16.	<i>Mangifera indica</i>	0.37 $\pm$ 0.23	0.40 $\pm$ 0.24
17.	<i>Terminalia catappa</i>	0.57 $\pm$ 0.40	0.40 $\pm$ 0.24
18.	<i>Claoxylon indicum</i>	2.94	0.20 $\pm$ 0.20
19.	<i>Aporosa benthamiana</i>	0.79	0.20 $\pm$ 0.20
20.	<i>Bridelia tomentosa</i>	0.67	0.20 $\pm$ 0.20
21.	<i>Girroniera nervosa</i>	0.30	0.20 $\pm$ 0.20
22.	<i>Syzygium borneense</i>	0.27	0.20 $\pm$ 0.20
23.	<i>Elaeocarpus petiolatus</i>	0.24	0.20 $\pm$ 0.20
24.	<i>Cyathea latebrosa</i>	0.23	0.20 $\pm$ 0.20
25.	<i>Syzygium polyanthum</i>	0.19	0.20 $\pm$ 0.20
26.	<i>Elaeocarpus mastersii</i>	0.17	0.20 $\pm$ 0.20
27.	<i>Ardisia elliptica</i>	0.15	0.20 $\pm$ 0.20
28.	<i>Bhesa paniculata</i>	0.13	0.20 $\pm$ 0.20