An Annotated Checklist of Higher Plants in Ayer Hitam Forest Reserve, Puchong, Selangor

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ABSTRACT

Ayer Hitam Forest Reserve is a Kelat-Kedondong subtype of the lowland dipterocarp forest situated in the Klang Valley which is currently undergoing a tremendous pace of socio-economic and physical development. The forest had been logged many times in the last 60 years or so and most vegetation niches are beginning to recover to their climax again. Our expedition, from 2-5 May 2000 involved a few botanists who observed and collected specimens of higher plants. The enumeration provided here is based only on the specimens collected during the expedition, includes 262 species of vascular plants belonging to 142 genera and 56 families. The Myrtaceae, with 22 species is the largest family in the checklist, followed by Euphorbiaceae, Dipterocarpaceae and Annonaceae with 21, 17 and 14 species, respectively. Species-wise the genus Knema is the largest with 13 species, followed by Memecylon, Syzygium and Diospyros with 9, 7 and 7 species, respectively.
research projects in the forest. The size of this forest is now reduced by about 64% to 1,248 ha, after it was further excised for some socio-economic development projects such as housing estates, oil palm plantation, new townships, factories, and highways, among others. In the present survey, this forest is classified as a disturbed Kelat-Kedondong-Mixed Dipterocarp type of lowland forest type (Faridah Hanum, 1999). Mat-Salleh (1999) has shown the role and function of a similar forest at Universiti Kebangsaan Malaysia that has been used by students and staff for similar purposes. The Ayer Hitam FR is located at 3° 00.00' N to 3° 02.20' N and 101° 37.90' E to 101° 40.00' E, approximately 20 km southwest of Kuala Lumpur.

Currently, this forest is thus completely surrounded by developed and developing areas, making it an "island forest" isolated in the middle of modern infrastructures and urban society. Being strategically located within the Multimedia Super Corridor, that connects the commercial city of Kuala Lumpur with the new administrative city of Putrajaya and business city of Cyberjaya, it is the only remaining lowland forest found in the Klang Valley, other than the smaller Bukit Nenas Forest Reserve in the heart of Kuala Lumpur. Historically, this forest was selectively logged several times from 1936 to 1966 and the impoverished diversity has begun to recover quite well (Mohamad Zakaria and Abdul Rahim 1999; Mohamad Zakaria and Rahmat Topani 1999). Formerly, the area was occupied by one of the remaining group of indigenous people, the Temuan tribe, but now moved to other more-disurbed areas of the forest (Faridah Hanum and Nurulhuda Hamzah 1999). This forest is also readily accessible by all kind of vehicles up to the base camp.

Logging activities were carried out in compartments 12 and 13 from 1936 until 1966. In those 30 years, these compartments were logged three times using Comercial Regeneration Felling system in 1936-1943 and 1965-1966, and Selective Felling in 1946-1954 (Faridah Hanum 1999). However, in 1990 silvicultural treatment has been carried out in these compartments.

CHECKLIST OF HIGHER PLANTS IN AYER HITAM FOREST RESERVE

The checklist produced below is the result of botanical observation and collection done during the Scientific Expedition. It is arranged alphabetically by families, each family is followed by the species known, according to Turner (1995). Where possible local name(s) is included with brief notes on habit and distribution.

Gymnosperms

1.0 Podocarpaceae
1.1 *Podocarpus neriifolius* D. Don
Podo Bukit
Tree to 20 m tall; normally confined to hill and montane forests; its occurrence in this forest is botanically very interesting. Probably it is introduced from the hill forest or an escape from cultivation.

2.0 Gnetaceae
2.1 *Gnetum cuspidatum* Blume
Large liana; commonly found in the lowland and hill forests; widespread.

Angiosperms - Dicotyledons

1.0 Acanthaceae
1.1 *Acanthus volubilis* Wall.
Trailing shrub which is commonly found scattered in the surveyed area.

1.2 *Asystasia gangetica* (L.) T. Anderson
Rumput Israel
Creeping herbs; normally found in waste and idle areas, sometimes in cultivated areas too; could be considered a noxious weed which is believed to be introduced from India and now beginning to be naturalized in the country.

2.0 Alangiaceae
2.1 *Alangium ebenaceum* (G.B. Clarke) Harms var. *ebenaceum*
Mentulang Daun Bluur
Tree to 10 m tall; commonly found in lowland forest.

3.0 Anacardiaceae
3.1 *Bouea macrophylla* Griff.
Kundang
Tree reaching up to 20 m, produce edible fruits; quite common in lowland and hill forest.

3.2 *Bouea oppositifolia* (Roxb.) Meisn.
Kundang Tikus, Rumia
Tree reaching to 20 m tall, also bears edible fruits; lowland forest up to 700 m altitude; widespread.

3.3 *Buchanania sessifolia* Blume
Rengas Air
Small to medium tree; lowland forest to 700 m; throughout.
3.4 *Gluta malayana* (Corner) Ding Hou
Rengas Kerbau Jalang
Tree to 30 m tall; lowland forest, including swampy areas; quite widespread.

3.5 *Magnifera magnifica* Kochummen
Macang Hutan
Big tree reaching 30 m tall; lowland forest to 700 m altitude; widespread and apparently quite common in Pasoh Forest Reserve.

3.6 *Magnifera quadrifida* Jack
Macang hutan
Tree to 30 m tall; lowland rain forest to 900 m altitude; widespread.

3.7 *Melanochyla angustifolia* Hook.f.
Rengas
Tree to 20 m tall; lowland forest to 600 m altitude; widespread.

3.8 *Melanochyla fulvinervis* (Blume) Ding Hou
Rengas Padi Kulit Hitam
Tree to 20 m tall; lowland forest, occasionally in the hills up to 1350 m altitude; widespread.

3.9 *Parishia paucijuga* Engl.
Rengas
Tree to 30 m tall; lowland and hill forest to 400 m altitude; widespread.

4.0 *Annonaceae*
4.1 *Alphonsea curtisii* King
Mempisang
Medium tree reaching 20 m tall; lowland forest; an element of the northern part of Peninsular Malaysia but recorded for the first time in Selangor.

4.2 *Alphonsea cylindrica* King
Mempisang
Tree to 10 m tall; lowland forest; not widespread.

4.3 *Alphonsea lucida* King
Mempisang
Shrub to 3 m tall; lowland forest; endemic to Peninsular Malaysia.

4.4 *Fissistigma kingii* (Boerl.) Burkill
Mempisang
Large liana; lowland forest; quite widespread.

4.5 *Fissistigma lanuginosum* (Hook.f. & Thomson) Merr.
Mempisang
Liana; lowland forest; widespread.

4.6 *Monocarpia marginalis* (Scheff.) J. Sinclair
Mempisang
Large tree reaching to 30 m tall; produce good timber; rather common in lowland forest; widespread.

4.7 *Pheathus opthalmicus* (Roxb. ex G.Don) J. Sinclair
Mempisang
Small shrub; lowland forest; widespread.

4.8 *Polyalthia cauliflora* Hook.f. & Thomson var. cauliflora
Mempisang
Shrub or small tree; lowland forest; quite widespread.

4.9 *Polyalthia motleyana* (Hook.f.) Airy Shaw var. oblonga (King) J. Sinclair
Mempisang
Small tree to 4 m tall; lowland to lower montane forest.

4.10 *Polyalthia rumphii* (Blume) Merr.
Mempisang
Tree to 15 m tall; lowland and hill forest; widespread.

4.11 *Polyalthia sumatrana* (Miq.) Kurz
Mempisang
Tree to 20 m tall; lowland and hill forest; widespread.

4.12 *Popowia fusca* King
Mempisang
Tree to 10 m tall; lowland forest; endemic to Peninsular Malaysia with restricted distribution.

4.13 *Xylopia densifolia* Hook.f.
Mempisang

4.14 *Xylopia ferruginea* (Hook.f. & Thomson) Hook.f. & Thomson var. ferruginea
Jangkang Bukit
Tree to 20 m tall; lowland forest; widespread.

5.0 *Apocynaceae*
5.1 *Dyera costulata* (Miq.) Hook. f.
Jelutong
Huge lactiferous tree reaching 40 m; lowland forests; has been reported gregariously growing in Kuala Langat South peatswamp forest; widespread.

6.0 *Aristolochiaceae*
6.1 *Thottea corymbosa* (Griff.) Ding Hou
Mempisang
Hempedu beruang
Shrub to 2 m tall; lowland and hill forest; widespread.

6.2 *Thottea grandiflora* Rottb.
Mempisang
Hempedu beruang
Shrub to 2 m tall; lowland and hill forest to 600 m; widespread.
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7.0 Celastraceae

7.1 Bhesa paniculata Arn.
Biku-Biku
Tree to 20 m tall; lowland and montane forest to 1300 m; widespread.

7.2 Euonymus javanicus Blume
Tree to 20 m tall; lowland and hill forest to 400 m; widespread.

8.0 Chrysobalanaceae

8.1 Atuna nannodes (Kosterm.) Kosterm.
Geranam
Tree to 20 m tall; lowland and hill forest to 750 m altitude; widespread.

8.2 Licania splendens (Korth.) Prance
Membatu
Tree to 10 m tall; lowland forest; throughout.

8.3 Parinari elmeri Merr.
Merpalu, Mempari
Tree to 20 m tall; lowland and hill forest to 600 m altitude; an element of the south of Peninsular Malaysia.

9.0 Combretaceae

9.1 Terminalia calamansanai (Blanco) Rolfe
Jelawai Mentalun
Tree to 20 m tall; lowland forest; normally found in the north of Peninsular Malaysia and its occurrence in Ayer Hitam Forest Reserve is phytogeographically interesting.

9.2 Terminalia foetidissima Griff.
Jelawai Mempelam Babi
Tree to 20 m tall; lowland forest; an element of the southern part of Peninsular Malaysia.

9.3 Terminalia phellocarpa King
Tree to 20 m tall; more commonly found in swamp or alluvial forests; widespread.

9.4 Terminalia subspathulata King
Jelawai Jaha
Large tree to 30 m tall; lowland forest.

10.0 Ctenolophonaceae

10.1 Ctenolophon parvifolius Oliv.
Meratas
Buttressed tree reaching 30 m tall; hilly forest below 300 m, also in swamps; widespread.

11.0 Dilleniaceae

11.1 Dillenia reticulata King var. reticulata
Simpoh Gajah
Stilt-rooted tree to 20 m tall; lowland forest, widespread; an endemic variety.

11.2 Dillenia sumatrana Miq.
Simpoh Padang
Tree to 20 m tall; lowland forest; quite widespread.

12.0 Dipterocarpaceae

12.1 Anisoptera costata Korth.
Mersawa
Huge tree; lowland forest; widespread.

12.2 Anisoptera curtisii Dyer ex King
Mersawa Kuning
Large buttressed tree; lowland and hill forest to 700 m; widespread but more common in the north of Peninsular Malaysia.

12.3 Anisoptera laevis Ridley
Mersawa Durian
Big tree; lowland forest; widespread.

12.4 Dipterocarpus crinitus Dyer
Keruing Mempelas
Tree; lowland and hill forest to 850 m; widespread.

12.5 Dipterocarpus verrucosus Foxw. ex Slooten
Keruing Merah
Tree; lowland forest; more common in the south of Peninsular Malaysia.

12.6 Hopea beccariana Burck
Merawan Batu
Large buttressed tree; lowland and hill forest to 1200 m; widespread.

12.7 Shorea acuminata Dyer
Meranti Rambai Daun
Large buttressed tree to 40 m tall; lowland forest; known previously from Perak and Terengganu, hence constituting a new record for Selangor.

12.8 Shorea hopeifolia (F. Heim) Symington
Damar Siput Jantan
Very tall buttressed tree; lowland forest to 600 m; quite widespread.

12.9 Shorea laevis Ridley
Balau Kumus
Large buttressed tree; lowland and hill forest to 1000 m; widespread.

12.10 Shorea macroptera Dyer
Meranti Melantai
Large tree; lowland and hill forest to 900 m; widespread.

12.11 Shorea multiflora (Bruck) Symington
Damar Hitam
Small to medium sized tree; lowland and hill forest to 700 m; throughout.

12.12 Shorea parvifolia Dyer ssp. parvifolia
Meranti Sarang Punai
Large tree; common in lowland and hill forest to 800 m; widespread.
12.13 *Vatica cinerea* King  
Resak Laut  
Small to medium sized tree; lowland and hill forest to 600 m, including limestone hill forest; previously known from the northern states of Peninsular Malaysia including Pulau Langkawi.

12.14 *Vatica cuspidata* (Ridley) Symington  
Resak Daun Runcing  
Medium to large tree; lowland ridge forest often near the sea; widespread; endemic to Peninsular Malaysia.

12.15 *Vatica maingayi* Dyer  
Resak  
Tree; lowland forest to 500 m; widespread.

12.16 *Vatica odorata* (Griff.) Symington  
Resak Bukit  
Tree; lowland forest, mostly coastal; quite widespread.

12.17 *Vatica stapfiana* (King) Slooten  
Resak  
Medium sized tree; lowland forest; widespread.

13.0 **Ebenaceae**

13.1 *Diospyros adenophora* Bakh.  
Kayu Arang  
Tree to 10 m tall; lowland forest, also on limestone hill forest; endemic to Peninsular Malaysia but quite widespread.

13.2 *Diospyros areolata* King & Gamble  
Kayu Arang, Merbatu  
Tree to 30 m tall; lowland and hill forest to 700 m; widespread.

13.3 *Diospyros argentea* Griff.  
Kayu Arang  
Tree to 10 m tall; lowland and hill forest to 800 m; endemic to Peninsular Malaysia but widespread.

13.4 *Diospyros lanceolata* Roxb.  
Nyalin, Kayu Arang  
Tree to 20 m tall; lowland and hill forest to 700 m; throughout.

13.5 *Diospyros maingayi* (Hiern.) Bakh.  
Kayu Arang  
Tree to 30 m tall; lowland and hill forest to 600 m; widespread.

13.6 *Diospyros sumatrana* Miq.  
Kayu Arang  
Tree to 30 m tall; lowland to montane forest at 1500 m; common throughout.

13.7 *Diospyros venosa* Wall. ex A. DC. var. *venosa*  
Kayu Arang  
Tree to 20 m tall; lowland to lower montane forest at 1300 m; throughout.

14.0 **Elaeocarpaceae**

14.1 *Elaeocarpus ferrugineus* (Jack) Steud ssp. *ferrugineus*  
Mendung  
Tree to 20 m tall; lowland to lower montane forest at 1200 m; common throughout.

14.2 *Elaeocarpus mastersii* King  
Mendung  
Tree to 20 m tall; lowland to montane forest at 2000 m; common throughout.

14.3 *Elaeocarpus nitidus* Jack var. *nitidus*  
Mendung  
Tree to 20 m tall; lowland to montane forest at 1500 m; common throughout.

14.4 *Elaeocarpus pedunculatus* Wall. ex Mast.  
Mendung  
Tree to 20 m tall; lowland and hill forest to 670 m; common throughout.

14.5 *Elaeocarpus pseudopaniculatus* Corner  
Mendung  
Tree to 10 m tall; a species which is known from the montane forest, especially At Fraser Hill and G. Tahan, its occurrence in the lowland forest of Selangor is both botanically and geographically interesting.

15.0 **Euphorbiaceae**

15.1 *Agrostistachys longifolia* (Wight) Benth. var. *leptostachya* (Pax & K. Hoffm.) Whitmore  
Jejulung  
Small tree to 10 m tall; lowland to lower montane forest at 1050 m; throughout.

15.2 *Antidesma cuspidatum* Mull. Arg.  
Berunai  
Small tree; lowland forest; common throughout.

15.3 *Aporusa microstachya* (Tul.) Mull. Arg.  
Nipis Kulit  
Tree; hillsides in lowland forest to 400 m; quite widespread.

15.4 *Austrobuixus nitidus* Miq. var. *nitidus*  
Tree to 20 m tall; lowland forest, including coastal forest, swamps, mountains; throughout.

15.5 *Baccaurea maingayi* Hook.f.  
Tampoi  
Tree to 20 m tall; hill forest; quite widespread but was not reported from Selangor before.

15.6 *Baccaurea parviflora* (Mull.Arg.) Mull.Arg.  
Asam Tambun
Small tree to 5 m tall; lowland and hill forest to 600 m; widespread, more common in the north of Peninsular Malaysia.

15.7 *Blumeodendron griffithii* Hook.f. Geraham Badak
Small tree, or sometimes reaching 20 m tall; hills to plains; throughout.

15.8 *Blumeodendron kurzii* (Hook.f.) J.J. Smith Geraham Badak
Tree to 10 m tall; lowland forest; quite widespread.

15.9 *Blumeodendron tokbrai* (Blume) J.J. Smith Geraham Badak
Tree to 20 m, sometimes stilt-rooted; lowland forest to 450 m, often in swamps; widespread.

15.10 *Bridelia stipularis* (L.) Blume Kenidai
Shrub or small tree; normally in open country, often near streams; scattered throughout.

15.11 *Drypetes pendula* Ridley Lidah-Lidah
Tree to 20 m tall; lowland forest; common throughout.

15.12 *Elateriospermum tapos* Blume Perah Ikan
Tree to 30 m tall; lowland and hill forest to 600 m; throughout.

15.13 *Endospermum diadenum* (Miq.) Airy Shaw Sesenduk
Tree to 30 m tall; lowland to lower montane forest at 1000 m; common throughout.

15.14 *Glochidion hypoleucum* (Miq.) Boerl. Minyak Beruk
Shrub or small tree to 5 m tall; lowland to lower montane forest at 1200 m; throughout.

15.15 *Macaranga giganiea* (Rchb.f. & Zoll.) Mull.Arg. Kubin
Tree to 15 m tall; common in disturbed lowland forest; throughout.

15.16 *Macaranga hosei* King ex Hook.f. Mahang
Tree to 20 m tall; lowland forest; common throughout.

15.17 *Macaranga hypoleuca* (Rchb.f. & Zoll.) Mull.Arg. Mahang Putih
Tree to 30 m tall; very common in secondary forest, especially along the forest edges; throughout.

15.18 *Macaranga triloba* (Blume) Mull.Arg. Mahang Merah
Small tree; lowland forest including secondary growth; common throughout. Dr. T. C. Whitmore (pers. comm. 2000) said the correct name for this species is *M. bancana, M. triloba* as delimited is strictly a Javanese species.

Tree to 15 m tall; lowland to lower montane forest at 1000 m; throughout; endemic to Peninsular Malaysia.

15.20 *Psychopyxix costata* Miq. var. *costata* Mendaruh
Tree to 4 m tall; lowland forest; supposedly very rare as it is previously known once from Sg. Kerian, Perak.

15.21 *Sapium baccatum* Roxb. Ludai
Tree to 30 m tall; lowland and hill forest to 600 m; throughout.

16.0 *Fagaceae*

16.1 *Castanopsis schefferana* Hance Berangan
Tree to 20 m tall; lowland forest; widespread.

16.2 *Lithocarpus conocarpus* (Oudem.) Render Mempening
Tree to 30 m tall; lowland to montane forest at 1800 m; quite widespread.

16.3 *Lithocarpus cyclophorus* (Endl.) A. Camus Mempening
Tree to 30 m tall; normally found in montane forest to 1800 m; widespread.

16.4 *Quercus argentata* Korth. Mempening
Tree to 20 m tall; lowland to montane forest; quite widespread.

16.5 *Quercus gemelliflora* Blume Mempening
Tree to 20 m tall; lowland to lower montane forest; widespread.

17.0 *Flacourtiaeae*

17.1 *Casearia capitellata* Blume Shrub or small tree to 4 m tall; lowland forest; quite widespread.

17.2 *Flacourtia rukam* Zoll. & Moritzi Rukam
Small thorny tree; lowland forest; widespread.
17.3 Homalium dictyoneurum (Hance) Warb.  
Telur Buaya  
Tree to 20 m tall; lowland forest; quite widespread.

17.4 Homalium longifolium Benth.  
Bunga Gambi  
Tree to 30 m tall; lowland forest; widespread.

18.0 Guttiferae  
18.1 Calophyllum alboramulum P.F. Stevens  
Bintangor  
Tree to 20 m tall; lowland forest; it is a rare species as it is previously known from Johore only.

18.2 Calophyllum dioscurii P.F. Stevens  
Bintangor  
Tree to 20 m tall; lowland forest; widespread.

18.3 Calophyllum rubiginosum M.R. Hend. & Wyatt-Smith  
Bintangor Karat  
Tree to 20 m tall; lowland forest; quite widespread.

18.4 Calophyllum tetramerum Miq. var. tetramerum  
Bintangor Kuning Daun Kecil  
Tree to 20 m tall; widespread.

18.5 Calophyllum wallichianum Planch. & Triana var. incrassatum M.R. Hend. & Wyatt-Smith  
Bintangor Daun Panjang  
Tree to 20 m tall; lowland forest; widespread.

18.6 Cratoxylum arbrescens (Vahl) Blume  
Geronggang  
Tree to 30 m tall; common in lowland swamp forest, also in the hills; widespread.

18.7 Cratoxylum sumatrnanum (Jack) Blume  
Derum  
Tree to 10 m tall; lowland forest; it is a rare species as it is previously known once each from Terengganu and Selangor.

18.8 Garcinia burkillii Whitmore  
Kandis  
Tree to 15 m tall; lowland to lower montane forest, 420-600 m; endemic to central part of the peninsula.

18.9 Garcinia cowa Roxb.  
Kandis  
Tree occasionally to 20 m tall; lowland forest mostly; widespread.

18.10 Garcinia malaccensis Hook.f.  
Manggis Hutan  
Tree to 20 m tall; lowland forest to 540 m; quite widespread.

18.11 Garcinia nigrolineata Planch. ex T. Anderson  
Kandis  
Tree; lowland forest to 600 m; common throughout.

18.12 Garcinia parvifolia (Miq.) Miq.  
Kandis  
Tree to 20 m tall; lowland forest to 600 m; common throughout.

18.13 Mesua ferrea L.  
Penaga Lilin  
Tree to 20 m tall; lowland forest to 480 m; throughout but more common in the north of Peninsular Malaysia.

18.14 Mesua lepidota T. Anderson var. lepidota  
Penaga Sabut  
Tree to 20 m tall; lowland forest.

18.15 Mesua racemosa (Planch. ex Triana) Kostermans  
Penaga Tikus  
Tree to 20 m tall; more common in lowland forest; widespread.

19.0 Hamamelidaceae  
19.1 Exbucklandia populnea (R. Br. ex Griff.) R. W. Br.  
Geruk  
A species normally found in lower montane forests and its occurrence in lowland forest of Ayer Hitam is interesting.

20.0 Icacinaceae  
20.1 Stenomerus malaccensis (Mast.) Sleumer  
Derhaka Mertua  
Tree to 20 m tall; lowland and hill forest to 1300 m; throughout.

21.0 Irvingiaceae  
21.1 Irvingia malayana Oliv. ex Benn.  
Pauh Kijang  
Tree to 40 m tall; lowland forest; widespread.

22.0 Ixonanthaceae  
22.1 Ixonanthesicosandra Jack  
Pagar Anak  
Tree to 30 m tall; found in primary and secondary forest, mostly lowlands; throughout.

22.2 Ixonanthes reticulata Jack  
Inggir Burung  
Tree to 30 m tall; lowland and hill forest; throughout.

23.0 Lauraceae  
23.1 Actinodaphne sphaerocarpa (Blume) Nees  
Medang Payung  
Tree to 20 m tall; lowlands and it is an
element of the northern part of Peninsular Malaysia.

23.2 *Alseodaphne foxiana* (Gamble) Kosterm. Medang
Tree to 15 m tall; montane forest above 1000 m; endemic to Peninsular Malaysia and quite widespread.

23.3 *Alseodaphne nigrescens* (Gamble) Kosterm. Medang
Small tree to 10 m tall; lowland to montane forest; widespread.

23.4 *Beilschmiedia dictyoneura* Kosterm. Medang
Tree to 30 m tall; lowland to lower montane forest at 1000 m; widespread.

23.5 *Beilschmiedia glabra* Kosterm. Medang
Tree to 20 m tall; lowland and hill forest to 900 m; previously known from Pahang and Johore.

23.6 *Cryptocarya rugulosa* Hook.f. Medang
Tree to 30 m tall; lowland and hill forest; widespread.

23.7 *Litsea grandis* (Wall. ex Nees) Hook.f. Medang Daun Besar
Tree to 20 m tall; lowland and montane forest at 1500 m; widespread.

24.0 *Lecythidaceae*

24.1 *Barringtonia macrostachya* (Jack) Kurz Putat
Tree to 20 m tall; lowland forest, rarely in the mountains; throughout.

25.0 *Leguminosae*

25.1 *Adenanthera malayana* Kosterm. Saga Daun Tajam
Tree sometimes to 30 m tall; lowland and hill forest to 900 m; often planted in villages; widespread but scattered.

25.2 *Adenanthera pavonina* L. Saga Daun Tumpul
Tree 20 m tall; lowland forest, usually near the sea; often planted in villages; wild on East Coast and offshore islands of Peninsular Malaysia.

25.3 *Albizia splendens* Miq. Kungkur
Tree sometimes reaching 20 m tall; lowland and hill forest to 700 m; scattered throughout.

25.4 *Archidendron bulbalinum* (Jack) I.C. Neilsen Kerdas
Tree to 20 m tall; lowland forest, often in secondary forest; the seeds are eaten with rice for flavour; widespread.

25.5 *Archidendron clypearia* (Jack) I.C. Neilsen Jering
Shrub or tree to 20 m tall; more common in montane forest.

25.6 *Archidendron contortum* (Martelli) I.C. Neilsen Petai Belalang
Shrub to small tree to 10 m tall; common in secondary forest, usually found in the beach forest; widespread.

25.7 *Callerya atropurpurea* (Wall.) Schot. Tulang Daing
Tree to 20 m tall; open country, sometimes planted as ornamental plant; widespread.

25.8 *Dialium indum* L. var. *indum* Keranjii Paya
Tree to 20 m tall; scattered in lowland forest; widespread.

25.9 *Dialium platysepalum* Baker Tree to 30 m tall; scattered in the lowland forest; throughout.

25.10 *Intsia palembanica* Miq. Merbau
Large buttressed tree to 40 m tall; common in lowland forest and produce valuable timber; throughout.

25.11 *Koompassia malaccensis* Maing. *ex* Benth. Kempas
Big tree to 50 m tall; common in lowland and hill forest; throughout.

25.12 *Parkia singularis* Miq. Petai Meranti
Tree to 20 m tall or more; lowland and hill forest to 500 m; widespread.

25.13 *Sindora echinocalyx* (Benth.) Prain Sepetir Daun Nipis
Tree to 30 m tall or more; hill forest to 700 m; widespread.

26.0 *Loganiaceae*

26.1 *Fagraea racemosa* Jack *ex* Wall. Tembusu
Tree; common in secondary forest, especially near the seashore; widespread.

26.2 *Norrisia malaccensis* Gardner Tree to 30 m tall; lowland forest; widespread.

27.0 *Melastomataceae*

27.1 *Memecylon amplexicaule* Roxb. Nipis Kulit
Tree to 15 m tall; lowland and hill forest to 1200 m; widespread.
27.2 Memecylon campanulatum C.B. Clarke
Nipis Kulit
Tree to 20 m tall; lowland forest; widespread.

27.3 Memecylon caeruleum Jack
Nipis Kulit
Shrub or small tree to 10 m tall; lowland forest; widespread.

27.4 Memecylon floridum Ridley
Nipis Kulit
Tree to 15 m tall; hill forest to 1200 m; endemic to Peninsular Malaysia but widespread.

27.5 Memecylon megacarpum Furtado
Nipis Kulit
Tree to 15 m tall; lowland to montane forest at 1800 m; widespread.

27.6 Memecylon minutiflorum Miq.
Tema
Tree to 25 m tall; lowland to montane forest at 1800 m; widespread.

27.7 Memecylon paniculatum Jack
Nipis Kulit
Tree to 30 m tall; lowland and hill forest to 1200 m; widespread.

27.8 Memecylon pubescens (C.B. Clarke) King
Nipis Kulit
Tree to 30 m tall; lowland and hill forest to 1200 m; widespread.

27.9 Memecylon wallichii Ridley
Nipis Kulit
Small tree to 5 m tall; lowland and hill forest; endemic to Peninsular Malaysia and quite widespread.

27.10 Pterandra coerulescens Jack
Nipis Kulit
Tree to 15 m tall; lowland and hill forest; widespread.

27.11 Pterandra echinata Jack
Sial Menahun
Tree to 15 m tall; lowland and hill forest to 1200 m; widespread.

28.0 Meliaceae

28.1 Aglaia edulis (Roxb.) Wall.
Pasak
Tree to 20 m tall; lowland and hill forest; quite widespread.

28.2 Chisocheton patens Blume
Memberas
Tree to 20 m tall; lowland forest; widespread.

28.3 Chisocheton tomentosus (Roxb.) Mabb.
Pasak
Tree to 20 m tall; lowland and hill forest; widespread.

28.4 Sandoricum koetjape (Burm.f.) Merr.
Sentul
Tree to 30 m tall; lowland and hill forest, and more common near the shores; often cultivated in the villages for its edible fruits, widespread.

29.0 Menispermaceae

29.1 Fibraurea tinctoria Lour.
Large liana to 20 m long; lowland and hill forest margins; widespread and common.

30.0 Moraceae

30.1 Artocarpus dadah Miq.
Pudu
Tree to 20 m tall; lowland and hill forest; throughout.

30.2 Artocarpus elasticus Reinw. ex Blume
Terap Nasi
Tree to 20 m tall; lowland and hill forest; throughout.

30.3 Artocarpus integer (Thunb.) Merr. var.
silvestris Corner
Cempedak
Tree to 20 m tall; lowland to montane forest; widespread.

30.4 Artocarpus lancefolius Roxb.
Keledang
Tree to 30 m tall; lowland and hill forest; widespread.

30.5 Streblus elongatus (Miq.) Corner
Tempinis
Tree to 20 m tall; lowland forest; widespread.

31.0 Myristicaceae

31.1 Gymnantranthera farquhariana (Hook.f. & Thomson) Ward. var. eugeniifolia (A.DC.) R.T.A. Schouten
Penarahan
Tree to 20 m tall; lowland and hill forest to 1300 m; widespread.

31.2 Horsfieldia fulva (King) Warb.
Penarahan
Tree to 20 m tall; lowland forest; quite widespread.

31.3 Horsfieldia irya (Gaertn.) Warb.
Penarahan
Tree to 20 m tall; lowland forest; widespread.

31.4a Horsfieldia polysphaerula (Hook.f.) J. Sinclair var. polysphaerula
Penarahan
Tree to 30 m tall; lowland forest; widespread.
31.4b *Horsfieldia polyspherula* (Hook.f.) J. Sinclair var. *sumatrana* (Miq.) W.J. de Wilde
Penarahan
Tree to 30 m tall; lowland forest; widespread.

31.5 *Horsfieldia ridleyana* (King) Warb.
Penarahan
Tree to 20 m tall; lowland forest on poor soils; widespread.

31.6 *Horsfieldia sucosa* (King) Warb.
Penarahan
Tree to 20 m tall; lowland forest; widespread.

31.7 *Knema curtisi* (King) Warb. var. *curtisi* De Wilde
Penarahan Daun Kecil
Tree to 10 m tall; lowland forest; widespread.

31.8 *Knema furfuracea* (Hook.f. & Thomson) Warb.
Penarahan Arang
Tree to 20 m tall; lowland forest; widespread.

31.9 *Knema glauca* (Blume) Warb.
Penarahan Arang
Tree to 20 m tall; lowland forest; quite widespread.

31.10 *Knema hookeriana* (Wall. ex Hook.f. & Thomson) Warb.
Penarahan
Tree to 20 m tall; lowland and hill forest; widespread.

31.11 *Knema intermedia* (Blume) Warb.
Penarahan
Tree to 10 m tall; lowland forest; widespread.

31.12 *Knema kunstleri* (King) Warb.
Penarahan
Tree to 10 m tall; lowland and hill forest on poor soils; widespread.

31.13 *Knema latericia* Elmer ssp. *ridleyi* (Gand.) W.J. de Wilde
Penarahan
Tree to 10 m tall; lowland forest; quite widespread.

31.14 *Knema laurina* (Blume) Warb. var. *laurina* Penarahan
Small tree; lowland forest; widespread.

31.15 *Knema malayana* Warb.
Penarahan
Tree to 15 m tall; lowland forest; widespread.

31.16 *Knema oblongifolia* (King) Warb.
Penarahan
Tree to 10 m tall; endemic to Peninsular Malaysia and quite widespread.

31.17 *Knema patentinovia* (J. Sinclair) W.J. de Wilde
Penarahan
Tree to 15 m tall; lowland forest; widespread.

31.18 *Knema pseudolaurina* W.J. de Wilde
Penarahan
Tree; lowland forest; widespread.

31.19 *Knema scortechinii* (King) J. Sinclair
Penarahan Arang
Tree to 20 m tall; lowland forest; widespread.

31.20 *Knema stenophylla* (Warb.) J. Sinclair
Penarahan
Tree to 10 m tall; lowland forest; widespread.

31.21 *Myristica iners* Blume
Penarahan
Tree to 20 m tall; lowland forest; common throughout.

31.22 *Myristica malaccensis* Hook.f.
Penarahan
Tree; lowlands; widespread.

32.0 *Myrtaceae*

32.1 *Ardisia crassa* C.B. Clarke
Sem Babui
Small tree; lowland forest; a southern element of Peninsular Malaysia.

33.0 *Myrtaceae*

33.1 *Rhodamnia cinerea* Jack
Mempoyan
Tree to 15 m tall; quite common in the lowland forest, especially in the secondary forest near the sea; common throughout.

33.2 *Syzygium borneense* (Miq.) Miq.
Kelat
Tree to 15 m tall; lowland forest.

33.3 *Syzygium claviflorum* (Roxb.) ex Wall. var. *claviflorum* Cowan & Cowan
Kelat
Medium sized tree; lowland and hill forest; widespread.

33.4 *Syzygium politum* (King) I. M. Turner
Kelat Merah
Shrub or small tree sometimes to 20 m tall; lowland and hill forest; endemic to Peninsular Malaysia and widespread.

33.5 *Syzygium pseudocrenulatum* (M.R. Hend.) I.M. Turner
Kelat
Stilt-rooted tree to 20 m tall; lowland
AN ANNOTATED CHECKLIST OF HIGHER PLANTS IN AYER HITAM FOREST RESERVE, PUCHONG, SELANGOR

forest; endemic to Peninsular Malaysia but widespread.

33.6 Syzygium pyrifolium (Blume) D.C. Kelat
Tree to 15 m tall; lowlands; widespread.

33.7 Syzygium rugosum Korth. var. rugosum Kelat
Tree to 20 m tall; lowland and hill forest; widespread.

33.8 Syzygium syzygioides (Miq.) Merr. & L.M. Perry Kelat
Tree to 20 m tall; lowlands, often coastal; common throughout.

34.0 Ochnaceae
34.1 Brackenridgea hookeri (Planch.) A.Gray
Tree to 20 m tall; lowland and hill forest to 1000 m; throughout.

34.2 Campylospermum serratum (Gaertn.) Bittrich & M.C.E. Amaral
Mata Ketam
Tree to 20 m tall; lowland and hill forest to 1000 m; common near the sea; throughout.

35.0 Olacaceae
35.1 Ochanostachys amentacea Mast.
Petaling
Tree to 20 m tall; lowland and hill forest to 900 m; widespread.

35.2 Scorodocarpus borneensis (Baill.) Becc.
Bawang Hutan
Tree reaching to 30 m tall; its bark smells of garlic; lowland forest; widespread.

35.3 Strombosia ceylanica Gardner
Kamap
Tree to 20 m tall; lowland forest; widespread.

35.4 Strombosia javanica Blume
Dedali
Tree to 20 m tall; lowland forest; widespread.

36.0 Oxalidaceae
36.1 Sarcothea griffithii (Planch. ex Hook.f.) Hallier f.
Belimbing Pipit
Tree to 20 m tall; lowland forest; widespread.

36.2 Sarcothea monophylla (Planch. ex Hook.f.) Hallier f.
Pupoi
Tree to 20 m tall; lowland forest; endemic and widespread.

37.0 Pandaceae
37.1 Galearia fulva (Tul.) Miq.
Small tree; lowland and hill forest to 690; throughout.

38.0 Polygalaceae
38.1 Xanthophyllum affine Korth. ex Miq.
Minyak Beruk
Tree to 20 m tall; usually smaller; lowlands and mountains; widespread.

38.2 Xanthophyllum amoenum Chodat
Minyak Beruk
Tree to 30 m tall; lowland and hill forest; widespread.

38.3 Xanthophyllum eurhynchum Miq. ssp. maingayi (Hook.f. ex A.W. Benn.) Meijden
Minyak Beruk
Shrub or tree to 20 m tall; lowland to mountains, forest understory; widespread.

38.4 Xanthophyllum griffithii Hook.f. ex A.W. Benn ssp. erectum Meijden
Minyak Beruk
Tree to 30 m tall; lowland and hill forest, usually on ridges; widespread.

38.5 Xanthophyllum stipitatum A.W. Benn.
Minyak Beruk
Tree to 30 m tall; lowland to lower montane forest; widespread.

38.6 Xanthophyllum vitellinum (Blume) Dietr.
Minyak Beruk
Tree to 30 m tall; lowland to lower montane forest; widespread.

39.0 Rhizophoraceae
39.1 Carallia eugenioidea King
Meransi Mata Keli
Shrub or small tree to 20 m tall; montane forests above 1200 m; previously not known from Selangor.

39.2 Pellacalyx axillaris Korth.
Membuloh
Tree to 20 m tall; damp or wet lowland or hill forest; widespread.

39.3 Pellacalyx saccardianus Scort.
Membuluh
Tree to 20 m tall; lowland and hill forest to 900 m; widespread; endemic to Peninsular Malaysia.

40.0 Rosaceae
40.1 Prunus arborea (Blume) Kalkman var. arborea
Pijat
Tree to 20 m tall; lowland to lower montane forest at 1300 m; widespread.

41.0 Rubiaceae
41.1 Acranthera pulchella (Ridley) K.M. Wong
Shrub; lower montane forest; endemic and previously known from Perak and Pahang.
41.2  *Aidia densiflora* (Wall.) Masam.  
Small tree to 15 m tall; lowland to montane forest; throughout.

41.3  *Diplodora malaccensis* Hook.f.  
Kopi Hutan  
Tree to 15 m tall; lowland to montane forest at 1500 m; throughout.

41.4  *Ixora javanica* (Blume) DC. var. *retinervia*  
Corner  
Shrub or small tree to 5 m tall; lowland and hill forest to 1000 m; widespread; an endemic variety.

41.5  *Nauclea officinalis* (Pierre ex Pit.) Merr. & Chun  
Mengkal  
Tree to 20 m tall; lowland and hill forest; throughout.

41.6  *Pertusadina eurynicha* (Miq.) Ridsdale  
Latticed tree to 20 m tall; lowland and hill forest to 400 m; scattered.

41.7  *Porterandia anisophyllea* (Jack ex Roxb.) Ridley  
Tinjau Belukar  
Tree to 10 m tall; lowland and hill forest; widespread.

41.8  *Psydrax maingayi* (Hook.f.) Bridson  
Tree to 15 m tall; lowland to lower montane forest; endemic to Peninsular Malaysia and widespread.

41.9  *Psydrax nitidum* (Craib) K.M. Wong  
Mentulang  
Small tree to 5 m tall; lowland forest including that on limestone hill forest at Pulau Langkawi.

41.10  *Timonius compressicaulis* (Miq.) Boerl.  
Shrub or small tree to 5 m tall; normally found on sandy and rocky shores; its occurrence in the Ayer Hitam FR is botanically noteworthy.

41.11  *Timonius wallichianus* (Korth.) Valetton  
Timun  
Tree to 5 m tall; lowland forests, common in secondary vegetation; widespread.

41.12  *Urophylhum glabrum* Wall.  
Shrub or small tree to 5 m tall; lowland to lower montane forest at 1000 m; throughout.

42.0  *Rutaceae*  
42.1  *Glycosmis chlorosperma* Spreng var. *chlorosperma*  
Shrub; lowland to montane forest; widespread.

42.2  *Macluroidendron porteri* (Hook.f.) T.G. Hartley  
Merlimau  
Tree to 20 m tall; lowland to lower montane forest; throughout.

43.0  *Sapotaceae*  
43.1  *Madhuca decipiens* J. Sinclair  
Nyatoh  
Tree to 20 m tall; lowland forest, previously known from Johore.

43.2  *Madhuca malaccensis* (C.B. Clarke) H.J. Lam.  
Nyatoh  
Tree to 20 m tall; lowland forest; widespread.

43.3  *Madhuca selangorica* (King & Gamble) J. Sinclair  
Nyatoh  
Tree to 15 m tall; lowland forest; endemic to the central part of Peninsular Malaysia, especially Selangor.

43.4  *Madhuca utilis* (Ridley) H.J. Lam  
Bitis  
Tree to 20 m tall; lowland forest; widespread.

43.5  *Palaquium gutta* (Hook.f.) Baill.  
Nyatoh Taban Merah  
Tree to 20 m tall; lowland and hill forest; widespread.

43.6  *Palaquium rostratum* (Miq.) Burck  
Nyatoh Sidang  
Tree to 30 m tall; lowland to montane forest; widespread.

43.7  *Payena maingayi* C.B. Clarke  
Nyatoh Durian  
Tree to 30 m tall; lowland forest; endemic to Peninsular Malaysia and widespread.

43.8  *Pouteria malaccensis* (C.B. Clarke) Baehni  
Nyatoh Nangka Kuning  
Tree to 30 m tall; lowland to lower montane forest; throughout.

44.0  *Simaroubaceae*  
44.1  *Eurycoma longifolia* Jack  
Tongkat Ali  
Tree to 5 m tall; lowlands and hills; throughout.

44.2  *Eurycoma apiculata* Benn.  
Tongkat Ali  
Tree to 5 m tall; usually in the mountains; about 1200 m; widespread.
45.0 Sterculiaceae
45.1 Pterygota alata (Roxb.) R. Br.
Tree to 30 m tall; lowland forests near rivers; widespread.

45.2 Scaphium longiflorum Ridley
Kembang Semangkuk Jantung
Tree to 30 m tall; swampy lowland forest; endemic and widespread.

45.3 Sterculia parvifolia Wall. ex R.Br.
Kelumpang
Small tree to 10 m tall; hill forest; quite widespread.

46.0 Theaceae
46.1 Gordonia maingayi Dyer
Kadeng
Tree to 15 m tall; lowland to montane forest at 1600 m; endemic to Peninsular Malaysia and widespread.

46.2 Gordonia scortechinii King
Pagar anak
Tree; lowland forest; endemic and previously known from Perak and Pahang, hence it is a new record for Selangor.

46.3 Ternstroemia bancana Miq.
Tree to 20 m tall; lowland forest to 500 m; widespread.

47.0 Thymelaeaceae
47.1 Aquilaria malaccensis Lam.
Karas
Tree to 30 m tall; lowland and hill forest to 750 m; widespread.

47.2 Gonystylus affinis Radlk.
Ramin
Tree to 30 m tall; lowland forest to 330 m; widespread.

47.3 Gonystylus bancanus (Miq.) Kurz.
Ramin Dara Elok
Tree to 20 m tall; more common in the lowland peat swamp forest.

47.4 Gonystylus maingayi Hook.f.
Ramin
Tree to 30 m tall; lowland forest; widespread.

48.0 Tiliaceae
48.1 Microcos antidesmifolia (King) Burret
Chenderai
Tree to 10 m tall; lowland forest, often near rivers; widespread.

48.2 Microcos lanceolata (Miq.) Burret
Damak-Damak
Shrub or small tree; lowland forest; mostly found in the west coast states.

49.0 Trigoniaceae
49.1 Trigoniasstrum hypoleucum Miq.
Marajali
Tree to 20 m tall; lowland forest; widespread.

50.0 Ulmaceae
50.1 Gironniera nervosa Planch.
Hampas Tebu
Tree to 35 m tall, usually smaller; lowland forest below 500 m; widespread.

50.2 Gironniera parvifolia Planch.
Hampas Tebu Licin
Tree to 20 m tall; lowland and hill forest to 900 m; widespread.

50.3 Trema cannabina Lour.
Shrub or small tree to 10 m tall; secondary forest to 1000 m; throughout.

50.4 Trema orientalis (L.) Blume
Mengkirai
Tree to 5 m tall; lowlands and hills.

51.0 Verbenaceae
51.1 Vitex gamosepala Griff.
Leban
Tree to 10 m tall; lowland and hill forest to 1200 m; throughout.

51.2 Vitex pinnata L.
Leban
Tree to 20 m tall; disturbed forest.

Angiosperms – Monocotyledons
In this scientific expedition for unknown reasons not much attention was given to collecting and observing the monocotyledons.

52.0 Gramineae
52.1 Centotheca lappacea (L.) Desv.
Rosette-forming herb to 1 m tall; shady places to 1500m; widespread.

52.2 Lophatherum gracile Bronn.
Herb to 1 m tall often forming loose rosette; openings in forest to 1650 m; widespread.

52.3 Panicum trigonum Retz.
Grass herb; common.

53.0 Marantaceae
53.1 Stachyphrynium griffithii (Baker) K. Schum.
Herb; lowland forest; previously known from Perak, Pahang and southward; endemic.

54.0 Palmae
54.1 Licuala sp. (AZ 6743)
DISCUSSION
The Ayer Hitam FR is a logged-over lowland dipterocarp forest which is fast recovering towards its climax. It is obvious from the above checklist that it is preliminary because it was based on observation and collection during a brief expedition and it must be taken together with other similar efforts taken by the researchers from the Faculty of Forestry, Universiti Putra Malaysia (Faridah Hanum 1999). In the above study a total of 430 species in 203 genera and 72 families were accounted whereas in this checklist only 262 species (ca. 60.9%) belonging to 142 genera (70%) and 56 families (77.8%) were enumerated. It is obvious that when the above list is compared with the present one the common taxa was very high, implying that collections were done on the same taxa, and most likely in the similar habitats. In the present checklist the following families are not represented at all: Burseraceae, Piperaceae, Zingiberaceae, Sapindaceae, Compositae, Dioscoreaceae, Proteaceae, Araliaceae, Crypteroniaceae, Opiliaceae, Sonneratiaceae, Vitaceae, Leeaceae, Solanaceae, Cyperaceae and Orchidaceae.

In the current checklist there are a total of 56 families, 54 are angiosperms and two are gymnosperms, some are represented by a species while others are quite largely represented by more than five species. The size of the 10 largest families is given, with Myrtaceae as being the largest containing a total of 22 species in four genera (Table 1). The Dipterocarpaceae, Guttiferae and Myristicaceae are represented by smaller number of genera but many species. The other large families such as Euphorbiaceae and Rubiaceae both are represented by larger number of genera and species. In many similar studies, the families such as Euphorbiaceae, Annonaceae and Rubiaceae which are always dominant in lowland dipterocarp forests present in large number in this logged over forest. The genera Macaranga and Mallotus (Euphorbiaceae) contain many pioneer species of the disturbed forests.

With respect to the size of genera, Knema (Myristicaceae) a lowland forest dweller is the largest genus containing a total of 13 species. This is followed by Memecylon (Melastomataceae) with 9 species and by Syzygium (Myrtaceae) and Diospyros (Ebenaceae) each containing 7 species (Table 2). All these genera are common components of lowland dipterocarp forest in Peninsular Malaysia, and their occurrence in the Ayer Hitam FR is highly expected. However, Syzygium is also common in beach forest (Tami 1996) and hill dipterocarp forest (Shamsul 2001). It is worth noting that Shorea and Diplocarpus (Dipterocarpaceae) are still present in moderate frequencies within the forest, although logging had taken place in the last 60 years or so. It is fair to assume that the trees belonging to these timber genera are remnants of the past logging operations or they were purposely left then as they did not attain their cutting limits. The other comparatively large genera are Elaeocarpus (Elaeocarpaceae), Calophyllum and Garcinia (Guttiferae).

### TABLE 1

<table>
<thead>
<tr>
<th>Family</th>
<th>No. of genera</th>
<th>No. of species</th>
</tr>
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<tbody>
<tr>
<td>Myrtaceae</td>
<td>4</td>
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<tr>
<td>Euphorbiaceae</td>
<td>15</td>
<td>21</td>
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<td>Dipterocarpaceae</td>
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### TABLE 2

<table>
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<td>Knema</td>
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<tr>
<td>Memecylon</td>
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<td>Diospyros</td>
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<td>Elaeocarpus</td>
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<tr>
<td>Calophyllum</td>
<td>5</td>
</tr>
<tr>
<td>Garcinia</td>
<td>5</td>
</tr>
</tbody>
</table>

Patterns of Plant Distribution in Ayer Hitam FR
The species composition in Ayer Hitam FR is interesting from the botanical point of view. By far the most predominant are the elements of lowland dipterocarp forests but as the forest has been logged and silvicultural treatments had been carried out, some pioneer species and
introduced species are observed. Among the introduced species include Podocarpus nerrifolius and weed species such as Asystasia gangetica, Eupatorium odoratum and Mikania micrantha.

Introduced Species
It seems only Podocarpus nerrifolius is the only introduced species observed in the Ayer Hitam FR. Others are weedy species.

Peninsular Malaysian Endemics
In Peninsular Malaysia there are a total of 749 endemic tree species and the number of non-tree endemic species is not known. In Ayer Hitam FR there are 20 endemic species, viz. Alphonsea lucida, Popowia fusca, Stachyphrynium griffithii, Gordonia maingayi, G. scortechnii, Scaphium longiflorum, Diospyros adenophora, D. argentea, Garcinia burkili, Vatica cuspidata, Alseodaphne foxiana, Memecylon floridum, M. wallichianum, Knema oblongifolia, Syzygium politum, Pellicalax saccardianus, Acranthera pulchella, Psylax maingayi, Madhuca selangorica and Payena maingayi. Most of these have a wide distribution except Acranthera pulchella and Madhuca selangorica which seem to be found in Selangor.

Rare Peninsular Malaysia Taxa
There are species which are known from very few collection records in Peninsular Malaysia and they are known to occur in Ayer Hitam FR. These include Psychotryc costata var. costata, Calophyllum alboramulum, Cratonylon sumatranum, Madhuca decipiens, Beilschmeidia glabra and Acranthera pulchella. This directly proves that Ayer Hitam FR is one of the refugia habitats for these taxa and hence conservation of this forest is deemed more important. Similar phenomenon has been shown by Mat-Salleh (1999) for Bangi FR at Universiti Kebangsaan Malaysia.

Malaysian Montane Elements
These are taxa which are known to occur on the mountains of Peninsular Malaysia and are observed and collected in the lowland forest of Ayer Hitam FR. These include Elaeocarpus pseudopaniculatus and Exbucklandia populnea. These taxa have proved that they could adapt to the microclimate of the lowlands.

Southern Peninsular Malaysian Elements
Those taxa which are known to occur south of Selangor, i.e. found in Negeri Sembilan, Malacca and Johore are termed the floristic elements of the south Peninsular Malaysia. Here, Selangor is taken as the mid-point between the south and north of peninsula. There are a few species which showed this pattern of distribution including Parinari elmerii, Terminalia foetidissima and Ardizia crassa.

Northern Peninsular Malaysian Elements
Conversely, all those taxa which are found north of Selangor, i.e. in Perak, Penang, Kedah and Perlis are termed as northern floristic elements. There are two species which showed this pattern of distribution including Alphonsea curtisi and Terminalia calamansanai.

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