

A Botanical Survey of Pulau Jong, Singapore

H.T.W. TAN, I.M. TURNER and K.S. CHUA

Department of Botany
The National University of Singapore
Singapore 119260

Abstract

A botanical survey of Pulau Jong of the Republic of Singapore, a 0.6 ha island off the south coast of Singapore Island, recently found at least 38 native vascular plant species which are listed here. Previous botanical records for the island are also collated to bring the recorded number of species now to 52. The contemporary flora is dominated by beach and secondary forest species. The slight change in the species composition and decline in number compared to observations made by Holttum (1925) are typical of the random fluctuations seen in small island floras.

Introduction

Pulau Jong is an island within the Republic of Singapore. Its vascular plant flora was described by Holttum (1925) in some detail. More recent records include collections made by J. Sinclair in 1950 and Johnson (1977) who probably quoted Holttum (1925). It was chosen for a botanical survey because it is relatively untouched largely owing to its reputation of being haunted (Brooke 1925), its very steep terrain, small area and lack of water, all of which would make it extremely difficult for settlement. It would thus be interesting to examine the flora in detail after a lapse of about 70 years. This survey is also part of the on-going Angiosperm Flora of Singapore Project

Site

Pulau Jong (N1° 12' 56.2", E 103° 47' 18.2") is a small, dome-shaped island (Fig. 1) of about 0.6 ha (Resource Centre, Ministry of Information and the Arts 1994) lying off the south coast of Singapore Island, surrounded by Pulau Bukom to the north-west, Pulau Sakeng to the south-west and Pulau Sebarok to the south-east (Fig. 5). *Jong*, is Malay for junk and is probably an allusion to the silhouette of the island being similar to that type of vessel. The island is generally undisturbed and activities of man are hardly evident. Brooke (1925) mentioned that half a dozen tombstones were found near the water's edge when he visited the island and a rusty, still-standing flagpole was found by us at the summit of the island which is 23.4 m in altitude.

Geologically, the island is the type locality of the Jong Facies and

“contains alternating beds of roundstone conglomerate and sandstone, and less frequently, beds of mudstone” (Anonymous, 1976).

Although there are no records of the climate for the Island, it would be very similar to that for mainland Singapore which has an equatorial climate with uniformly high temperatures, humidity and rainfall year-round (Chia and Foong, 1991).

Methods

All the specimens cited in Table 1 as “Collected Recently” were obtained by a team of five researchers who made a thorough survey of the island on 13 Nov 1992. These collections were made into herbarium sheet specimens which were identified largely by comparison with named specimens in the Herbarium, Singapore Botanic Gardens (SING). Nomenclature follows those of Turner, Chua and Tan (1990) and Turner (1993). Voucher specimens of all the species reported were deposited in the Herbarium, Department of Botany, The National University of Singapore (SINU) and replicates when available, distributed to other herbaria, mostly to SING. A survey of specimens from previous collections found in SING and SINU was also made to compile an historical list of species found on Pulau Jong.

Results and Discussion

The species that were recorded in the past and more recently are given in Table 1. Found recently were a total of 38 vascular plants comprising nine ferns, two gymnosperms and 27 angiosperms. All can be considered native species.

From herbarium sheet labels, Holttum had made some collections of the species he mentioned in his 1925 paper. Collection dates were 9 Jun, 11 Jun and 13 Jul 1924. Sinclair also made collections on 22 Sep 1950. From the survey of past collections and literature, the total number of vascular plants including those recently collected is 52 with 13 ferns, two gymnosperms and 37 angiosperms.

The Pulau Jong flora is approximately 1.5% of the total flora for the Republic of Singapore in about 0.0009% of the area. The species list is made up largely of beach and secondary forest elements with some mangrove species.

Most of the species are common with some exceptions considered endangered, vulnerable or rare in the Singapore context according to Turner *et al.* (1994). A few trees of *Podocarpus polystachyus* at the highwater mark were

observed. This is an endangered species with only a few other individuals known in Singapore from Kampong Mandai Kechil and Sentosa (Tan, Turner and Chua, 1994; Turner *et al.*, 1994). One treelet of *Pongamia pinnata* which has a conservation status of vulnerable (Turner *et al.*, 1994) was seen. Another taxon currently found on the island and categorized as vulnerable is *Pteridium caudatum* ssp. *yarrabense* (Wee, 1994). *Schefflera elliptica*, a rare species, which Keng (1990) noted to be probably extinct, has now been rediscovered here as well as in Pulau Ubin (Turner *et al.*, 1992). *Gnetum microcarpum*, a rare species in Singapore (Turner *et al.*, 1994), said to be of the rain forest (Markgraf, 1951), was growing well in a few locations on the island climbing on trees almost to the sea edge and bearing many strobili in seed. There were many fully blooming individuals of the rare *Tarenna fragrans* (Turner *et al.*, 1994). This species is probably absent on the mainland but also seen in Pulau Ubin (Turner *et al.*, 1992). Other recently collected species considered to be rare according to Turner *et al.* (1994) include *Ficus globosa*, *Memecylon edule* and *Xylocarpus granatum*. In view of the significant number of species classified endangered, vulnerable or rare, the island is worth conserving as it is one of the few localities for these species.

The flora has changed from that which Holttum (1925) described. Of the sea shore plants he mentioned, *Desmodium umbellatum*, *Heritiera littoralis*, *Hibiscus tiliaceus*, *Intsia bijuga* (called *Afzelia retusa* by Holttum), *Premna corymbosa* (*Premna integrifolia*), *Pterocarpus indicus* and *Sonneratia griffithii* are now extinct. Found too was a seedling of the mangrove-dwelling *Xylocarpus granatum* which was not previously recorded by Holttum (1925).

The slopes of the island have changed little in species composition (Figs. 2 and 3). The extant species are very similar to those mentioned by Holttum (1925) except for the extinction of *Commersonia bartramia* (*Commersonia platyphylla*). *Eugenia spicata* and *Eugenia grandis* are much more plentiful than described by Holttum (1925). At the more rocky areas, patches of *Davallia* species (Fig. 3) and *Dicranopteris linearis* (Fig. 2) occur between the beach forest areas. *Davallia solida* was collected by Holttum (1925) but we collected only *Davallia denticulata*. As both species occur in this type of habitat and are very similar, it is quite possible that in both our cases, one could easily overlook the presence of the other.

The vegetation of the summit of the island (Fig. 4) has changed considerably. Holttum (1925) described it as being quite open, mostly covered by bracken fern (probably *Pteridium caudatum* ssp. *yarrabense*) and the grass, *Eriachne pallescens* with stunted bushes of *Melastoma malabathricum* (*Melastoma*

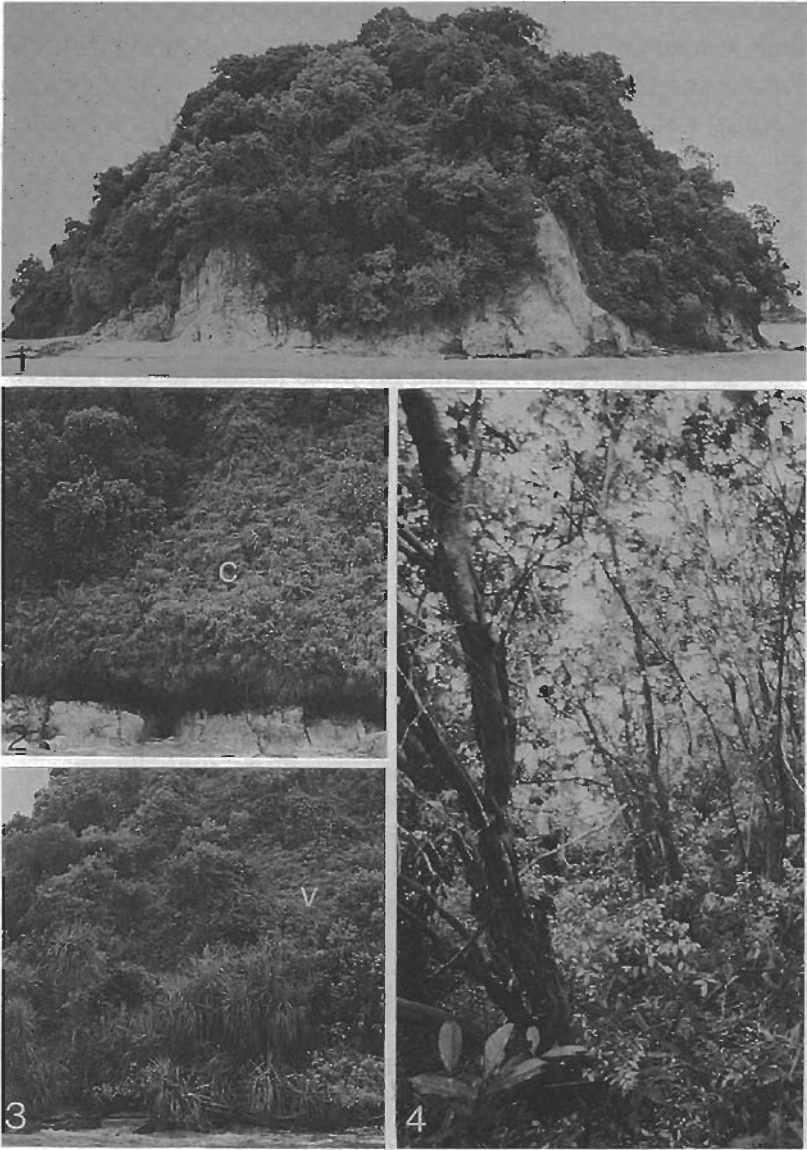


Fig. 1. View of Pulau Jong from the east-south-east. Most of the island is covered by beach forest.

Fig. 2. Patch of *Dicranopteris linearis* (c) growing to the edge of the sea.

Fig. 3. *Pandanus odoratissimus* plants in the foreground with a patch of *Davallia species* (v) behind.

Fig. 4. Beach forest at the summit of Pulau Jong. The tallest trees are about 8 m in height. I.M. Turner is seen about centre.

polyanthum). Currently, the summit has mostly a dense growth of trees and is similar in species composition to the slopes with small patches of *Dicranopteris linearis* in the few open areas. Most of the trees are *Eugenia spicata* with lesser numbers of *Eugenia grandis* and *Myrica esculenta*. This cover of trees has occurred contrary to the predictions of Holttum (1925) who felt that the high exposure and drainage of the summit area would not be conducive to growth of taller vegetation. The tallest trees at the summit and slopes are about 8 m in height.

The extant species of epiphytes and lithophytes are similar to those found by Holttum (1925). The pigeon orchid plants (*Dendrobium crumenatum*) however, appeared to be on the verge of extinction with a few tiny, half-dried individuals on the rocks almost at the sea edge, growing with *Pyrrosia lanceolata*.

The present vegetation of the island consists of patches of beach forest with patches of *Davallia* species (Fig. 3) or *Dicranopteris linearis* (Fig. 2) in the open areas with poorer or no soil. Presumably, in time, with the build up of soil, the whole island will become covered with beach forest.

The ten newly recorded species may have either been overlooked by Holttum (1925) who had stated that the 41 vascular plant species he noted "is probably by no means all that are present", or, they may have since arrived by various means.

The two newly recorded ferns, young plants of *Acrostichum speciosum* and *Vittaria ensiformis* have wind-dispersed spores. Ridley (1930) has noted that *Xylocarpus granatum* (called *Carapa moluccensis* by Ridley) has corky, buoyant seeds which are sea-dispersed. Ridley (1930) quoting H.B. Guppy has noted that the legumes of *Pongamia pinnata* (*Pongamia glabra*) are buoyant and can float for months in the sea. He also mentioned that *Derris trifoliata* (*Derris uliginosa*) has similar fruits and dispersal mode.

The other species are probably bird-dispersed as their fruits are of the colours Ridley (1930) listed, that attract birds. Ridley (1930) noted that seeds of *Gnetum* species are mostly dispersed by birds but may be dispersed by water and have been seen in sea-drift. *Gnetum microcarpum* has pink, ripe seeds which are probably bird-dispersed. *Arthropphyllum diversifolium* (*Arthropphyllum ovalifolium*) is probably bird-dispersed (Ridley, 1930). *Breynia reclinata* has slightly fleshy, red capsules and red is the most attractive colour to birds (Ridley, 1930). *Memecylon edule* has fleshy, black berries when ripe and black is the third most attractive colour to birds (Ridley, 1930). Lastly, *Ficus globosa* which

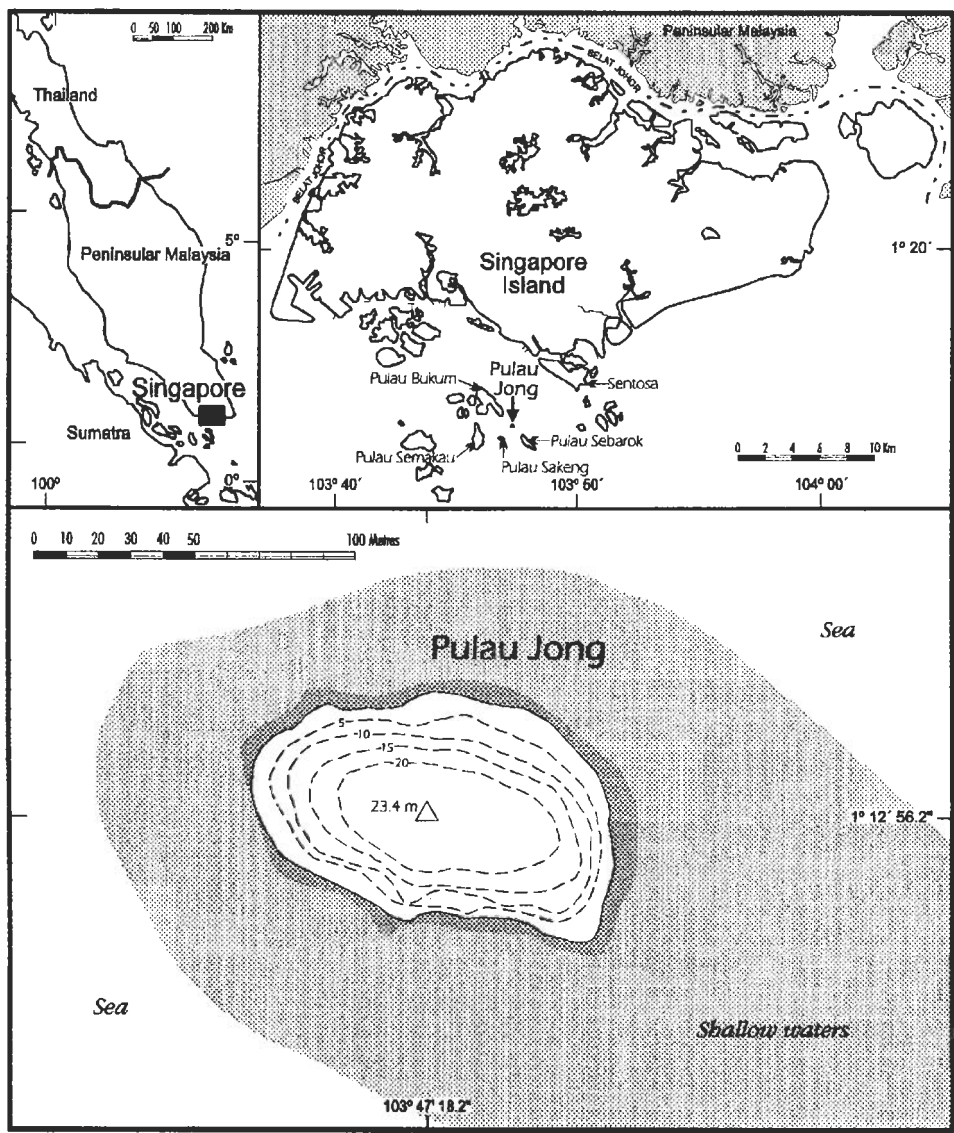


Fig. 5. Maps of Singapore and Pulau Jong. In the bottom map, the contour lines are at 5 m intervals. This map is based on the 1:2,500 topographic map published by the Chief Surveyor, Singapore, 1970 and by courtesy of the Chief Surveyor, Singapore.

has a 1.5 cm diameter fruit may be bird or bat-dispersed like many other members of its genus.

The 16 species which have become extinct, may have become so for any of the factors including a lack of adaptation to the island habitat, the 'founder principle', greater susceptibility to random non-adaptive changes in genomes because of the small population size, biological interactions between species, currently present such as competition or co-evolutionary effects (Cox and Moore, 1985). The slight decline in number of species, extinction of some and the immigration of others are typical of the random fluctuations of small island floras.

Holtum (1925) mentioned that he found *Pterocarpus indicus* and *Morinda citrifolia* on the island. *Morinda citrifolia* was also found in the recent survey. In view of the relatively untouched nature of the island, in all probability *Pterocarpus indicus* was, and *Morinda citrifolia* is, growing naturally. Turner, Chua and Tan (1990) and Turner (1993) omitted *Pterocarpus indicus* from their lists of Singapore vascular plants because it was not considered a native or naturalised species but one that is only cultivated and *Morinda citrifolia* was considered an alien species. Whitmore (1972) commented that *Pterocarpus indicus* occurs naturally "in coastal areas and tidal creeks along the east coast of Johor(e) and the Rompin district of Pahang" in Peninsular Malaysia. It thus seems very possible that this species also occurs naturally in Singapore which is immediately south of Johore. Sinclair had also collected a specimen of *Pterocarpus indicus* on 22 Sep 1950 at Pulau Sakeng (Specimen - J. Sinclair SFN 39009). Although Pulau Sakeng is close to Pulau Jong, it has been inhabited even before the founding of Singapore by the British, so whether that tree from which the specimen was taken, was cultivated, cannot be ascertained. To confuse issues further, this species was introduced as a street tree so the vast majority of trees in Singapore have been planted. Wong (1989) described *Morinda citrifolia* to be "cultivated in villages and wild on lowland and rocky coasts" so the specimens on Pulau Jong are likely to be wild plants. This species is difficult to designate as native or alien because it is cultivated as well as occurs naturally.

Acknowledgements

We are grateful for the assistance of Soong Beng Ching, Jean Yong Wan Hong and Siti Dahlia binte Mohd. Dali as well as Avijit Gupta for information on the geology of the area. We would like to express our appreciation to the Director of the Botanic Gardens, Singapore for allowing us the use of the Herbarium and

the Chief Surveyor, Singapore for allowing us to reproduce in part, the 1:2500 topography map of Pulau Jong. This survey was supported by The National University of Singapore Research Grant RP 880301.

References

- Anonymous (1976). *Geology of the Republic of Singapore*, Public Works Department, Singapore; Singapore.
- Brooke, G.E. (1925). Notes on the Flora of Pulau Jong: Introduction. *The Singapore Naturalist* 5, 47.
- Chia, L.S. and Foong, S.F. (1991). Climate and weather. In: *The biophysical environment of Singapore* edited by Chia, L.S., Rahman, A. and Tay, D.B.H. Singapore University Press, Singapore. pp. 13-49.
- Cox, C.B. and Moore, P.D. (1985). *Biogeography: an ecological and evolutionary approach*. 4th ed., Blackwell Scientific Publications; Oxford.
- Holttum, R.E. (1925). Notes on the Flora of Pulau Jong: The vegetation. *The Singapore Naturalist* 5, 48-50.
- Johnson, A. (1977). *A student's guide to the ferns of Singapore Island*. Singapore University Press; Singapore.
- Keng, H. (1990). *The concise Flora of Singapore: Gymnosperms and dicotyledons*. Singapore University Press; Singapore.
- Markgraf, F. (1951). Gnetaceae. *Flora Malesiana* I, 4, 337-347.
- Ridley, H.N. (1930). *The dispersal of plants throughout the world*. L. Reeve; Ashford, Kent.
- Resource Centre, Ministry of Information and the Arts (1993). *Singapore facts and pictures 1993*. Ministry of Information and the Arts; Singapore.
- Tan, H.T.W., Turner, I.M. and Chua, K.S. (1994). Flora-seed plants. In: *The Singapore Red Data Book of endangered plants and animals*. Ed: Ng, P.K.L. and Wee, Y.C. Nature Society (Singapore); Singapore; 18-49
- Turner, I.M. (1993). The names used for Singapore plants since 1900. *Gdns'*

Bull., Singapore 45, 1-287.

- Turner, I.M., Chua, K.S. and Tan, H.T.W. (1990). A checklist of native and naturalized vascular plants of the Republic of Singapore. *J. Singapore Nat. Acad. Sci.* 18 & 19, 58-88.
- Turner, I.M., Tan, H.T.W., Ali bin Ibrahim and Corlett, R.T. (1994). Checklists of threatened species - seed plants. In: *The Singapore Red Data Book of endangered plants and animals*. Ed: Ng, P.K.L. and Wee, Y.C. Nature Society (Singapore); Singapore; 273-313
- Turner, I.M., Tan, H.T.W., Chua, K.S., Haji Samsuri bin Haji Ahmad and Wee, Y.C. (1992). A botanical survey of Pulau Ubin. *Gdns' Bull., Singapore* 44, 51-71.
- Wee, Y.C. (1994). Checklists of threatened species - ferns and fern allies. In: *The Singapore Red Data Book of endangered plants and animals*. Ed: Ng, P.K.L. and Wee, Y.C. Nature Society (Singapore); Singapore; 269-272
- Whitmore, T.C. (1972). Leguminosae. *Tree Flora of Malaya* 1, 237-304.
- Wong, K.M. (1989). Rubiaceae. *Tree Flora of Malaya* 4, 324-425.

Table 1. The vascular plants of Pulau Jong.

This list includes those mentioned by Holttum (1925), Johnson (1977) and collections made by Holttum, J. Sinclair and us. The specimens and nomenclature of Holttum and Sinclair were redetermined and updated, respectively.

S/No.	Species	Holttum (1925)	Johnson (1977)	Collected Recently	Specimen
PTERIDOPHYTA					
Blechnaceae					
1.	<i>Blechnum orientale</i> L.	+	+	-	R.E.Holttum s.n. 11 Jun 1924
Davalliaceae					
2.	<i>Davallia denticulata</i> (J. Burm.) Mett.	-	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 16
3.	<i>Davallia solida</i> (G. Forst.) Sw.	+	+	-	R.E. Holttum s.n. 9 Jun 1924
4.	<i>Humata heterophylla</i> (Sm.) Desv.	+	+	-	R.E. Holttum s.n. 9 Jun 1924
Gleicheniaceae					
5.	<i>Dicranopteris linearis</i> (Burm.f.) Underw.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 27
Hypolepidaceae					
6.	<i>Pteridium caudatum</i> (L.) Maxon ssp. <i>yarrabense</i> (Donnmin) Parris	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 31
Nephrolepidaceae					
7.	<i>Nephrolepis biserrata</i> (Sw.) Schott	+	+	+	R.E. Holttum s.n. 13 Jul 1924; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 19
Polypodiaceae					
8.	<i>Phymatosorus scolopendria</i> (Burm.f.) Pic. Serm.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 17
9.	<i>Pyrrosia lanceolata</i> (L.) Farw.	+	+	+	R.E. Holttum s.n. 9 Jun 1924; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 11
10.	<i>Pyrrosia piloselloides</i> (L.) M.G. Price	+	+	-	R.E. Holttum s.n. 13 Jul 1924

S/No.	Species	Holttum (1925)	Johnson (1977)	Collected Recently	Specimen
Pteridaceae					
11.	<i>Acrostichum speciosum</i> Willd.	-	-	+	K.S.Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 20
Schizaeaceae					
12.	<i>Lygodium microphyllum</i> (Cav.) R.Br.	+	+	+	R.E. Holttum s.n. 13 Jul 1924; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 13
Vittariaceae					
13.	<i>Vittaria ensiformis</i> Sw. var. <i>ensiformis</i>	-	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 45
PINOPHYTA					
Gnetaceae					
1.	<i>Gnetum microcarpum</i> Blume f. <i>microcarpum</i>	-	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 28 K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 38
Podocarpaceae					
2.	<i>Podocarpus polystachyus</i> R.Br. ex Endl.	-	-	-	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 26
MAGNOLIOPHYTA					
Araliaceae					
1.	<i>Arthrophyllum diversifolium</i> Blume	-	-	+	K.S.Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 42
2.	<i>Schefflera elliptica</i> (Blume) Harms	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 34
Aselepiadaceae					
3.	<i>Dischidia major</i> (Vahl) Merr.	+	-	-	Nil

S/No.	Species	Holttum (1925)	Johnson (1977)	Collected Recently	Specimen
Euphorbiaceae					
4.	<i>Breynia reclinata</i> (Roxb.) Hook.f.	-	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 22
5.	<i>Macaranga heynei</i> I.M. Johnst.	-	-	+	R.E. Holttum s.n. 11 Jun 1924
Goodeniaceae					
6.	<i>Scaevola taccada</i> (Gaertn.) Roxb.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 6
Gramineae					
7.	<i>Eriachne pallescens</i> R.Br.	+	-	+	R.E. Holttum s.n. 13 Jul 1924; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 9
8.	<i>Imperata cylindrica</i> (L.) P.Beauv. var. <i>major</i> (Nees) C.E. Hubb. ex C.E.Hubb. & R.E. Vaughan	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 12
Leguminosae					
9.	<i>Dalbergia candenatensis</i> (Dennst.) Prain	+	-	+	R.E. Holttum s.n. 13 Jul 1924; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 35
10.	<i>Derris trifoliata</i> Lour.	-	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 7
11.	<i>Desmodium umbellatum</i> (L.) DC.	-	-	-	R.E. Holttum s.n. 11 June 1924
12.	<i>Intsia bijuga</i> (Colebr.) Kuntze	+	-	-	R.E. Holttum s.n. 13 Jul 1924; J. Sinclair SFN 39001
13.	<i>Pongamia pinnata</i> (L.) Pierre	-	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 39
14.	<i>Pterocarpus indicus</i> Wild.	+	-	-	Nil
Liliaceae					
15.	<i>Dianella ensifolia</i> (L.) DC.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 18

S/No.	Species	Holtum (1925)	Johnson (1977)	Collected Recently	Specimen
Malvaceae					
16.	<i>Hibiscus tiliaceus</i> L.	-	-	+	Nil
Melastomataceae					
17.	<i>Melastoma malabathricum</i> L.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 40
18.	<i>Memecylon edule</i> Roxb. var. <i>edule</i>	-	-	+	J. Sinclair SFN 39004; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 1; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 43
Meliaceae					
19.	<i>Xylocarpus granatum</i> J.König	-	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 3
Moraceae					
20.	<i>Ficus globosa</i> Blume	-	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 41
21.	<i>Ficus grossularioides</i> Burm.f.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 25
Myricaceae					
22.	<i>Myrica esculenta</i> Buch.-Ham.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 23
Myrtaceae					
23.	<i>Eugenia grandis</i> Wight	-	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 29; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W. Yong 33.
24.	<i>Eugenia spicata</i> Lam.	+	-	+	R.E. Holtum s.n. 11 Jun 1924 K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 24

S/No.	Species	Holttum (1925)	Johnson (1977)	Collected Recently	Specimen
Orchidaceae					
25.	<i>Dendrobium crumenatum</i> Sw.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 44
Pandanaceae					
26.	<i>Pandanus odoratissimus</i> L.f.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 21
Rubiaceae					
27.	<i>Gynochthodes subanceolata</i> Miq.	+	-	+	R.E. Holttum s.n. 11 Jun 1924; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 2
28.	<i>Morinda citrifolia</i> L.	+	-	+	R.E. Holttum s.n. 11 Jun 1924; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 10; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 36
29.	<i>Morinda umbellata</i> L.	-	-	-	R.E. Holttum s.n. 11 Jun 1924; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 32
30.	<i>Tarenna fragrans</i> (Nees) Koord. & Walston	+	-	+	R.E. Holttum s.n. 13 Jul 1924; J.Sinclair SFN 39005; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 4; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 5; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 37
Sapindaceae					
31.	<i>Guioa pleuropteris</i> (Blume) Radlk.	+	-	+	R.E. Holttum s.n. 11 Jun 1924; J. Sinclair SFN 39003; K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 15

S/No.	Species	Holttum (1925)	Johnson (1977)	Collected Recently	Specimen
Sonneratiaceae					
32.	<i>Sonneratia alba</i> Sm.	+	-	-	Nil
Sterculiaceae					
33.	<i>Commersonia bartramia</i> (L.) Merr.	+	-	-	R.E. Holttum s.n. 13 Jul 1924
34.	<i>Heritiera littoralis</i> Dryand. ex Aiton	+	-	-	Nil
Theaceae					
35.	<i>Adinandra dumosa</i> Jack	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 30
Verbenaceae					
36.	<i>Premna corymbosa</i> (Burm.f.) Rottler & Wild.	+	-	-	Nil
37.	<i>Vitex pinnata</i> L.	+	-	+	K.S. Chua, B.C. Soong, H.T.W. Tan, I.M. Turner & J.W.H. Yong JONG 8