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A PRELIMINARY STUDY OF THE VEGETATION OF SURIN ISLANDS

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Summary

A brief account of the vegetation of the Surin Islands has been given, being the result of a scientific expedition during the month of April 1976 to undertake a preliminary biological survey and feasible study of establishing a wildlife and marine sanctuary.

The vegetation as a whole is in similarity to that of the mainland. After studying the collection of herbarium specimens brought back to Bangkok a new record, *Amomum aculeatum* (Zingiberaceae) is noteworthy.

Introduction

During April 12th-21st, 1976 a scientific expedition to the Surin Islands on the west coast of Peninsular Thailand has been organised to undertake a preliminary biological survey as well as to study the feasibility of establishing a wildlife and marine sanctuary.

This official venture involved the Royal Forest Department, Department of Fisheries (Phuket Marine Biological Centre), Applied Scientific Research Corporation of Thailand (Centre for Thai National Reference Collections), The Siam Society (Natural History Section), and scientists from other institutions.

Besides the author the vegetation study team was participated by followings members:

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The expedition had its headquater at the south-east bay of the Surin Nua island (Fig. 1), provisionally named "Ao Mamuang" owing to a gigantic wild mango tree *(Mangifera* sp.) in the beach forest. The encampment was made on the raised beach behind the mangrove stand at the mouth of a streamlet within the eastern corner of the bay, from where short excursions were made to other locations on foot and over the water by means of motor vehicle.

The Islands

Being the furthermost group in the Thai water, Surin Islands are located in Ranong Province between 9° 23′ to 9° 21′ N latitude and 97° 50′ to 97° 55′ E longitude; they are consisted of 4 islands. The main ones are the Surin Nua with an area of about 18.7 km² and Surin Tai of some 11.6 km² (Fig. 1), lying close together and separated by a narrow channel about 200 m wide; both are well-covered with luxuriant vegetation. The other two are mere islets, the Torinla on the south-east and an unnamed one on the north-west of the Surin Tai; being rocky in nature, both are covered with sparse vegetation. The physical nature of the Islands is referrable to BROCKELMAN (in this volume).

Eventhough unpopulated the impacts of Man are evident as shown by timber logs, cut rattans and empty shells along the beaches; fishing net hammocks and bivouac sites in the beach forest as well as deserted huts; burnt up beaches and headlands; secondary growths in certain areas; and devastated corals in the sea.

According to local information, the islands have been subjected to timber exploitation sometimes during the sixtieth of this century; but the extraction of timber was a failure, owing to difficult terrains and the problem of sea transportation; the western part was extensively

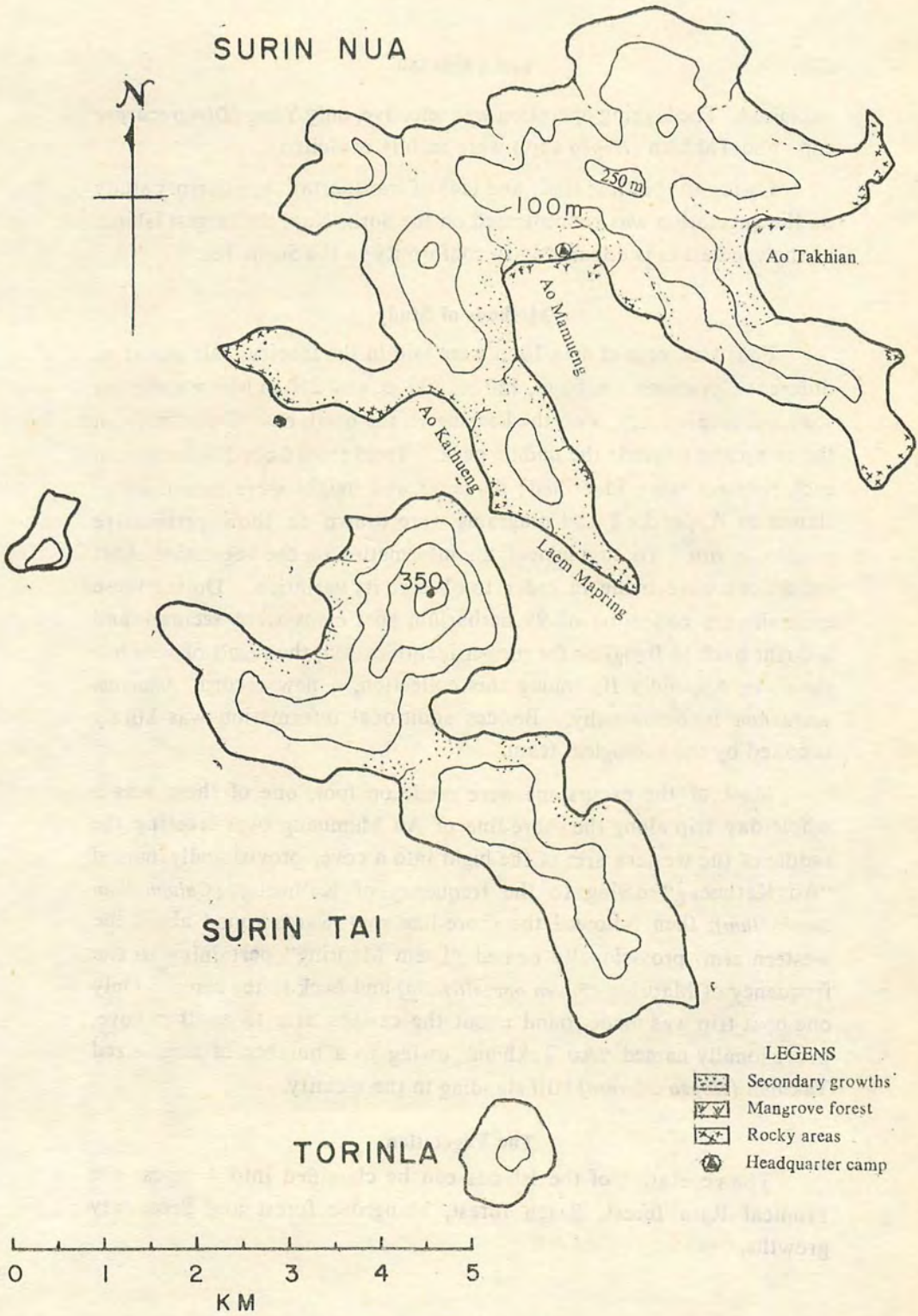

Fig. 1. Map Showing Surin Islands, Phangnga.

exploited. The logging operation was selective, only Yang (*Dipterocarpus* spp.) and Takhian (*Hopea* spp.) were mainly exploited.

Owing to the time limit and lack of transportation, a cursory study on the vegetation was concentrated on the Surin Nua, the largest island, as the vegetation is apparently in conformity to the Surin Tai.

Methods of Study

Four transects of 40 x 10 m were laid in the tropical rain forest at different elevations, i.e. 60 m, 140 m, 200 m, and 250 m above the mean sea level respectively, with the bearing on the north-east direction from the camp site towards the middle peak. Trees from 6 cm diameter up in each transect were identified; diameter and height were measured; as shown in Appendix I and diagrams were drawn to show perspective profile *in situ*. To supplement the information on the vegetation short excursions were made in order to observe its variation. During these excursions a collection of 99 herbarium specimens were secured and brought back to Bangkok for proper identification, the result of which is shown in Appendix II; among this collection, a new record, *Amomum aculeatum* is noteworthy. Besides additional information was kindly supplied by the zoological team.

Most of the excursions were made on foot, one of these was a whole-day trip along the shore-line of Ao Mamuang over-crossing the saddle of the western arm of the bight into a cove, provisionally named "Ao Kathueng" owing to the frequency of Kathueng *(Calophyllum inophyllum)*; then followed the shore-line southwards round about the western arm, provisionally named "Laem Mapring" pertaining to the frequency of Mapring *(Bouea oppositifolia)* and back to the camp. Only one boat trip was made round about the eastern arm to another cove, provisionally named "Ao Takhian" owing to a number of large-sized Takhian *(Hopea odorata)* still standing in the vicinity.

The Vegetation

The vegetation of the Islands can be classified into 4 types: the Tropical Rain forest, Beach forest, Mangrove forest and Secondary growths.

1. The Tropical Rain forest. This type forms the main coverage occupying slopes and ridges, the forest is typically 3-storied; but varied in the speciation, which can be defined into 3 zones, i.e. the lower, middle and higher ridges.

A. The lower zone is between 10–100 m elevations on rather steep slopes with granitic boulders, intersected by a number of short running streams; actually these streams end up at an elevation of about 300 m into dried-up galleys.

The top storey is 25–35 m high, dominantly represented by sterculiaceous trees namely: *Pterocymbium tinctorium* and *Pterygota alata;* the latter is more frequent and attains prominent buttresses; the crown canopy is continuous. The middle storey, in having *Nephelium hypoleucum*, *Xerosperspernum intermedium*, *Bouea oppositifolia* and *Diospyros cauliflora* Bl. as dominant species, forms a broken crown canopy with the height of about 20 m; other species in this stratum are: *Hydnocarpus ilicifolius* and *Pterospermum diversifolium.* The lowest storey is very dense in nature of about 10–15 m in height the genus *Diospyros (D. areolata, D. sumatrana, D. wallichii* and *D. undulata)* forms the majority, with *Baccaurea ramiflora, Knema globularia, K. laurina, Microdesmis caseariifolia, Polyalthia* sp. and a palm, *Caryota mitis* in association (Fig. 2).

Creepers *(Pothos* sp., *Piper* sp. and *Scindapsus* sp.*)*, rattans *(Calamus* spp., *Daemonorops* spp.), and a straggling bamboo *(Dinochloa montana)* entangling the formation together with other woody climbers, such as : *Strychnos colubrina, Bauhinia pulla, Ancistrocladus tectorius, Poikilospermum suaveolens, Millettia* sp., *Sphenodesme* sp., *Fibrauea* sp., *Ventilago* sp. and, *Artabotrys* sp. The ground floor is endowed with a thick layer of litters and sparsely covered with herbaceous species, such as: *Bolbitis appendiculata, Aglaonema* sp., and *Chasalia curviflora.*

B. The middlezone is between the elevations of 100–160 m on lower ridges and gentle slopes, sparsely strewn with granitic outcrops. The top storey is 25–35 m high dominantly represented by anacardiaceous trees namely: *Parishia insignis, Swintonia griffithii* and *Dracontomelum*

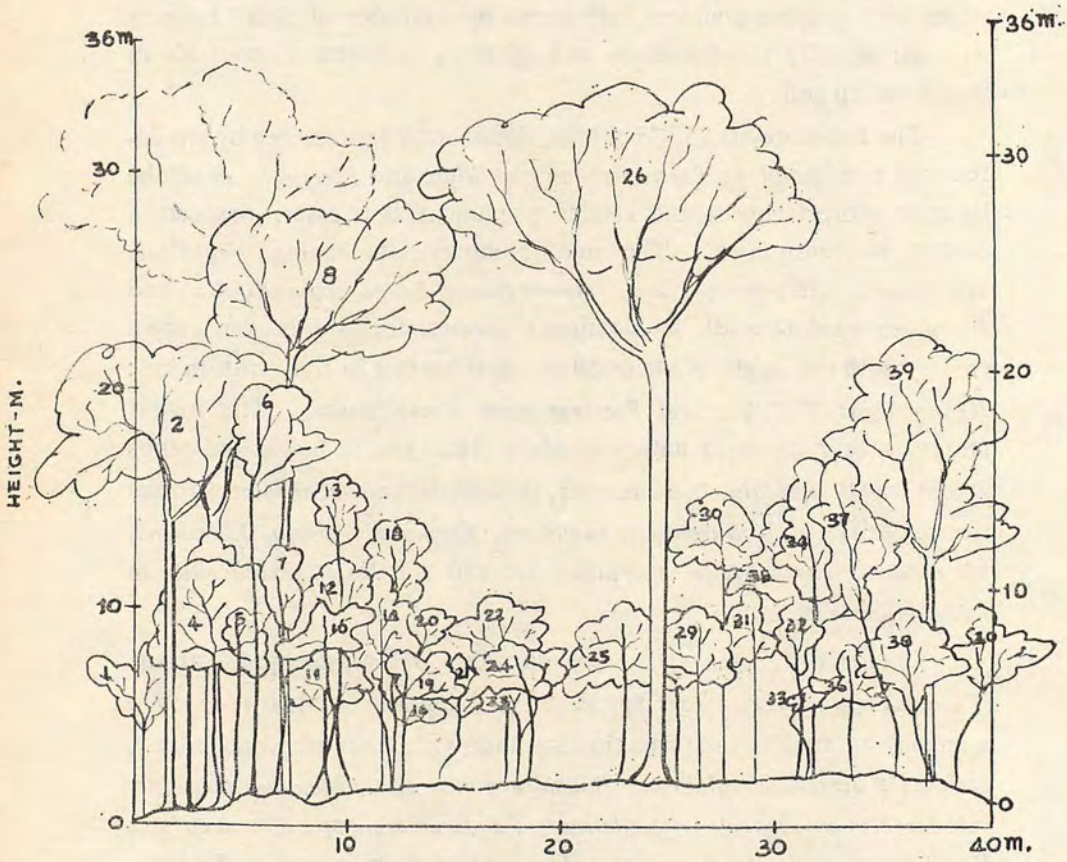

Fig. 2. Trapical rain forest at Ko Surin, Phangnga Province.
Elevation 60 m., April 14, 1976.

mangiferum, with *Dipterocarpus grandiflorus*, *Vatica cinerea* and *Endospermum diadenum* in association; *Swintonia griffithii* is more frequent. The second storey is 15–20 m high and consisted of *Antidesma bunius*, *Diospyros areolata*, *Dillenia aurea*, *Stemonurus malaccensis*, *Bouea oppisitifolia*, *Adenanthera microsperma*, *Barringtonia* sp., *Dehaasia* sp. and *Eugenia* sp. The lowest storey is 8–12 m high and composed by *Prunus arborea*, *Antidesma sootepensis*, *Diospyros undulata*, *Cleistanthus helferi*, *Galearia fulva*, *Polyalthia* sp., and *Aglaia* sp. (Fig. 3); among this stratum many shrubs occur such as: *Lasianthus andamanicus.*, *Rinorea horneri*, *Microtropis* sp., and *Glycosmis* sp. Few palms also present, i.e. *Borassodendron machadonis*, *Calamus* spp., and *Daemonorops* spp.

The formation is entangled with woody climbers such as: *Ancistrocladus tectorius*, *Bauhinia pulla*, *Spatholobus compar*, *Strychnos colubrina*, *Combretum* sp., *Luvanga* sp., *Ventilago* sp., *Reissantia* sp., *Sphenodesme* sp., and *Capparis* sp.; the scandent bamboo, *Dinochloa montana*, is also frequent. Following undershrubs and herbs are notable: *Phyllanthus roseus*, *Schumanianthus dichotomus*, *Curculigo latifolia*, *Tropidia graminea*, *Bolbitis appendiculata*, *B. virens*, *Mapania* sp., and *Homalomena* sp. Creepers are also frequent such as *Scindapsus cuscuaria*, *Psychotria lasiocephala*, *Ficus tinctoria*, *Hoya* sp., *Pothos* sp., and *Freycinetia* sp.

C. The upper zone is from 160–250 m elevations on higher slopes and ridges without any granitic outcrops; the forest is evidently a primeval one with dense formation and a continuous crown canopy. The topmost storey is composed of dipterocarpaceous tree species such as: *Anisoptera oblonga*, *Dipterocarpus grandiflorus*, *D. costatus.*, and *Vatica cinerea* together with *Dracontomelum mangiferum*, *Swingonia griffithii*, *Parishia insignis* and *Endospermum diadenum.*; among these epiphytic *Ficus annulata* and *F. altissima* is not unfrequent. Also in this zone *Parishia insignis* is frequent. The second storey is 15–20 m in height and consisted of *Aquilaria malaccensis*, *Bouea oppositifolia*, *Canthium dicoccum*, *Stemonurus malaccensis*, *Payena* sp., *Eugenia* sp., and *Diospyros* spp. The lowest storey is 7–15 m high and composed by *Antidesma sootepensis*, *A. bunius*, *Drypetes longifolia*, *Flacourtia jangomas*, *Garcinia merguensis*, *Hunteria zeylanica*, *Diospyros* spp., *Goniothalamus* sp., *Prismatomeris* sp., *Tarenna* sp., *Eugenia* sp., and *Ardisia* sp. (Figs. 4 & 5).

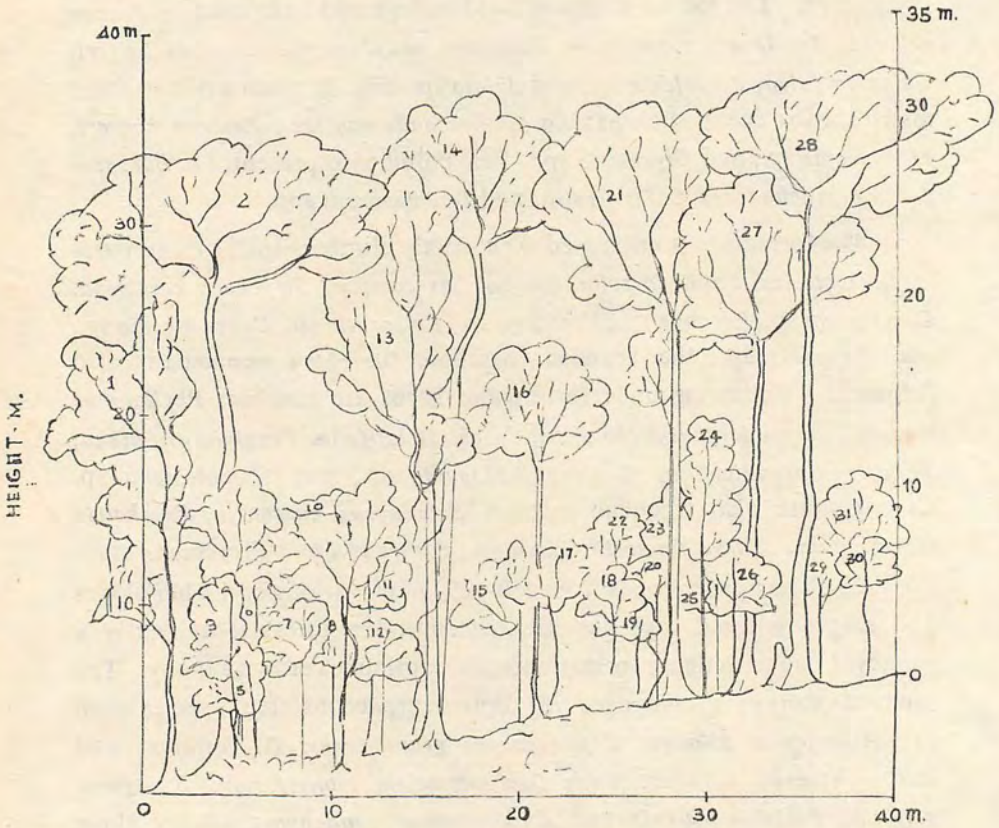

Fig. 3. Tropical rain forest at Ko Surin, Phangnga Province. Elevation 140 m., April 14, 1976.

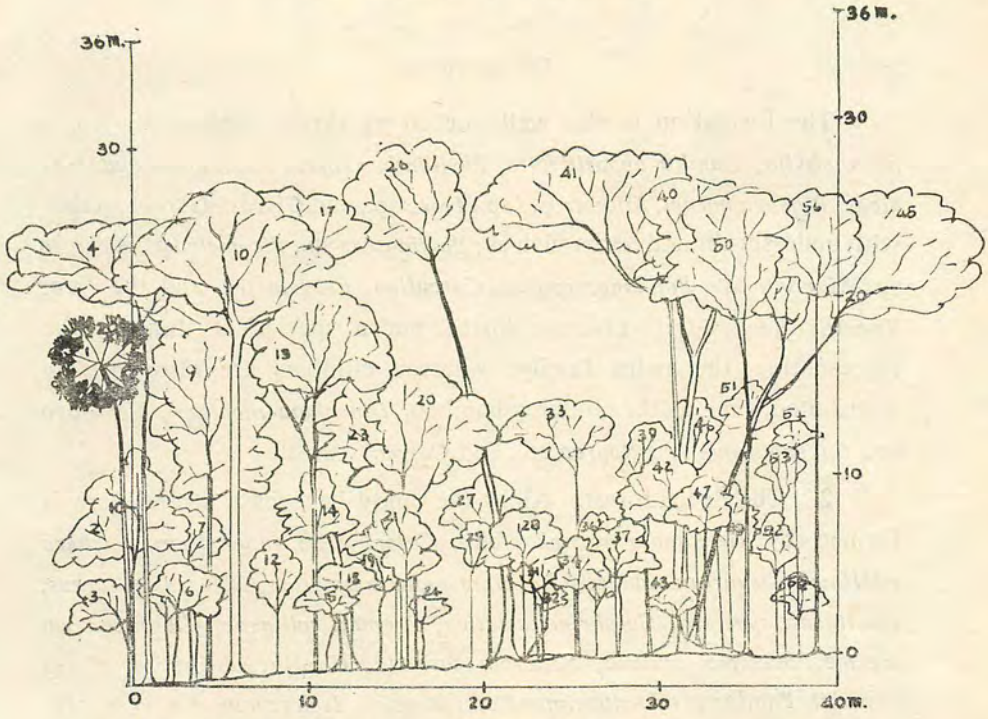

Fig. 4. Tropical rain forest at Ko Surin, Phangnga Province.
Elevation 200 m., April 15, 1976.

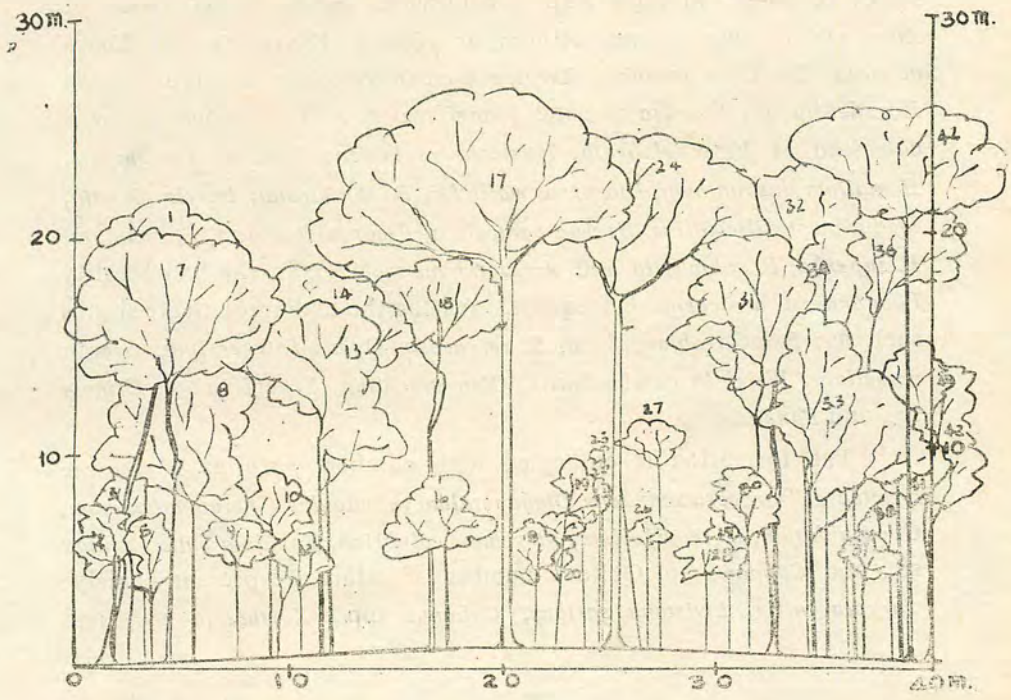

Fig. 5. Tropical rain forest at Ko Surin, Phangnga Province.
Elevation 240 m., April 15, 1976.

The formation is also well-stocked by shrubs such as *Psychotria adenophylla*, *Randia oppositifolia*, *Phyllanthus rosea*, *Lasianthus andamanicus*, *Rinonea hornei*, *Microtropis* sp., *Ixora* sp., and *Glycosmis* sp., together with undershrubs and herbs such as: *Phyllanthus* sp., *Pleomele* sp., *Alocasia* sp., *Mapania* sp., *Pandanus ovatus*, *Curculigo*, *Freycinetia*, and the fern, *Taenitis blechnoides*. *Livistona saribus* and a species of *Calamus* are representing the palm family, whereas climbers are also sparsely distributed, such as the climbing bamboo, *Dinochloa montana*, *Ventilago* sp., *Sphenodesme* sp., *Rourea* sp., and *Capparis* sp.

2. The Beach forest. Along the sandy beaches a strand flora is formed by *Hernandia nymphaefolia*, *Calophyllum inophyllum*, *Cerbera odollam*, *Casuarina equisetifolia*, *Barringtonia asiatica*, *Hibiscus tiliaceus*, *Guettarda speciosa*, *Colubrina asiatica*, *Premna collinsae*, *Clerodendrum inerme*, *Scolopia spinosa*, *Scaevola taccada*, *Cordia subcordata*, *Cycas rumphii*, *Pandanus odoratissimus* and the grass *Ischaemum muticum*. On the raised beach about 2 m above the sea level behind the strand and mangrove forests, a dense stand of 2-storied forest is found. The top storey of 20–25 m high with a continuous canopy is consisted of *Adenanthera microsperma*, *Artocarpus rigidus*, *Vatica cinerea*, *Hopea odorata*, *Heritiera javanica*, *Xerospermum intermedium*, *Pterygota alata*, *Horsfieldia* sp., *Nauclea* sp., and *Mangifera* sp.. The second storey is consisted of *Vitex glabrata*, *Hunteria zeylanica*, *Garcinia mergueusis*, *Homalium dasyanthum*, *Diospyros wallichii*, *D. sumatrana*, *Derris pinnata*, *Hydnocarpus ilicifolius*, *Grewia paniculata*, *Ficus microcarpa*, *F. annulata*, *F. superba*, *F. calophylla* and *Atalantia monophylla;* in the wet locality *Pandanus* cf. *atrocarpus* is frequent. Among the undergrowth are shrubs such as: *Salacia oblongifolia*, *S. verrucosa*, *Ochna integerrima*, *Grewia umbellata*, *Wrightia cambodiensis*, *Olea maritima*, *Schefflera* sp., *Crinum* sp., and *Pandanus* sp.

The formation is entangled with climbers such as *Phytocrene bracteata*, *Tetracera scandens*, *Dichapetalum gelonioides*, *Gnetum montanum*, *G. cuspidatum*, *G. tenuifolium*, *Strychnos colubrina*, *Bauhinia pulla*, *Smilax* sp., and *Capparis* sp. Quite a number of palms are present namely: *Caryota mitis*, *Livistona saribus*, *Calamus* spp., *Korthalsia* sp., and

Daemonorops spp. Epiphytes are frequent and sometimes well-covered the tree trunk. The following species have been observed: *Dendrobium indivisum*, *Eria bractescens*, *Luisia* sp., *Hoya parasitica*, *H. parviflora*, *Drynaria quercifolia*, and *Pyrrosia adnascens*.

The rocky headlands quite exposed to the wind support stunted formation of trees and shrubs; common among these are: *Atalantia monosperma*, *Cratoxylum formosum*, *Ochna integerrima*, *Memecylon plebejum*, *Grewia umbellata*, and *Scolopia spinosa;* those in the shelter support the normal growth of species in the beach forest as well as the tropical rain forest, namely *Sterculia foetida* and *Parishia insignis* for instant.

3. Mangrove forest. In the shelter of bays and coves along the sandy muddy shores and estuaries, narrow strips of rather poor mangrove forest exist; the typical tidal formation of the mainland is almost absent, only few spots of *Bruguiera—Sonneratia—Heritiera* associe are existing within the estuaries. In the mangrove forest tree species are consisting of *Rhizophora apiculata*, *R. mucronata*, *Bruguiera gymnorhiza*, *Xylocarpus granatum*, and *Sonneratia griffithii; Cerbera odollam* is not frequent. There is a stark evidence that mangrove species can not survive the sandy location, shown by a dying stand of *R. apiculata* on a sandy beach at Ao Takhian. It is apparent that a number of epiphytes thrives on the mangrove trees such as the fern *Drynaria quercifolia* and orchids of the genera: *Bulbophyllum*, *Cymbidium*, and *Dendrobium;* also few species of mosses have been observed on the trunk of mangrove trees.

4. Secondary growths. This formation is caused by activities of human and nature by means of camping during the logging operation and the bivouac of fishermen during the monsoon; and the effect of the hurricane during the monsoon. The formation is one-storied of 8—10 m high consisting of *Macarang tanarius*, *Mallotus dispar*, *Canthium umbellatum*, and *Cratoxylon formosum*, together with *Dinochloa montana*, *Tetracera scandens*, *Hiptage lucida*, *Colubrina asiatica*, and *Grewia umbellata*.

Conclusion

Eventhough the islands are quite isolated, this preliminary study of their vegetation shows a similarity to that of the mainland. This is not surprising as the islands are situated between the Andamans and the mainland, and thus subjected to the influence of the Indo-Malayan floristic elements.

Acknowledgements

The author is most grateful to all members of the vegetation study team in making this expedition a success, with a very congenial and pleasant atmosphere, a great relief from the tedious and tenuous work. He also owes so much to Mrs. Chirayuphin for the valuable collection and her painstaking job of identification. To Mr. Anan Nalampoon for his assiduous collecting of data and the satisfactory drawing of profile diagrams, the author wishes to tender his appreciation.

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APPENDIX I

Measurement of tree in the transects

Tree No.	Species	Height m	Diamter cm
	A. Transect I (Fig. 2)		
1.	*Caryota mitis*	7	10.2
2.	*Nephelium hypoleucm*	22	67.1
3.	*Pterygota alata*	11	20.4
4.	*Diospyros areolata*	10	15.3
5.	*Pterygota alata*	9	9.5
6.	*Pterygota alata*	19	25.5
7.	*Pterygota alata*	11	15.3
8.	*Pterocymbium tinctorium*	26	76.4
9.	*Albizzia* sp.	9	6.7
10.	*Diospyros areolata*	9	21.6
11.	*Diospyros undulata*	7	6.7
12.	*Diospyros sumatrana*	11	19.1
13.	*Pterygota alata*	15	24.2
14.	*Knema globularia*	10	13.0
15.	*Diospyros* sp.	7	7.0
16.	*Polyalthia* sp.	7	6.4
17.	Unidentified	8	11.8
18.	*Diospyros cauliflora*	12	18.5
19.	*Polyalthia* sp.	6	7.6
20.	*Knema laurina*	8	9.5
21.	Unidentified	6	8.9
22.	Unidentified	10	18.1
23.	Unidentified	6	15.9
24.	*Polyalthia* sp.	4	7.6
25.	*Polyalthia* sp.	8	15.6
26.	*Pterygota alata*	32	77.9
27.	*Polyalthia* sp.	8	9.5
28.	*Pterygota alata*	8	11.4
29.	*Polyalthia* sp.	8	12.7
30.	*Pterygota alata*	13	18.8
31.	*Diospyros areolata*	9	14.6
32.	*Diospyros areolata*	13	21.9
33.	*Pterygota alata*	4	8.9
34.	*Pterygota alata*	13	21.9
35.	*Diospyros areolata*	13	27.0
36.	*Polyalthia* sp.	5	7.0
37.	*Pterygota alata*	15	18.5
38.	*Microdesmis caseariifolia*	8	14.3
39.	*Nephelium hypoleucum*	20	41.7
40.	*Polyalthia* sp.	8	10.5

Tree No.	Species	Heignt m	Diamter cm
	B. Transect II (Fig. 3)		
1.	*Swintonia griffithii*	25	45.2
2.	*Swintonia griffithii*	31	79.5
3.	*Swintonia griffithii*	9	13.4
4.	*Antidesma bunius*	15	19.6
5.	*Antidesma sootepensis*	6	8.9
6.	*Swintonia griffithii*	10	10.8
7.	*Dehaasia* sp.	8	11.4
8.	*Galearia fulva*	7	5.7
9.	*Diospyros areolata*	16	15.9
10.	*Stemonurus malaccensis*	14	18.1
11.	*Stemonurus malaccensis*	12	14.3
12.	*Stemonurus malaccensis*	7	8.9
13.	*Swintonia griffithii*	31	63.6
14.	*Swintonia griffithii*	34	70.0
15.	Unidentified	9	9.5
16.	*Barringtonia* sp.	18	25.5
17.	*Antidesma sootepensis*	10	13.0
18.	*Diospyros areolata*	7	6.9
19.	*Bouea appositifolia*	5	7.6
20.	*Diospyros areolata*	8	13.0
21.	*Parishia insignis*	31	63.6
22.	*Prunus arborea*	10	12.7
23.	*Polyalthia* sp.	12	14.3
24.	Unidentified	15	20.7
25.	*Diospyros areolata*	8	7.6
26.	Unidentified	7	11.8
27.	*Xerospermum intermedium*	26	73.2
28.	*Dracontomelum mangiferum*	32	79.5
29.	*Cleistanthus helferi*	7	7.9
30.	Unidentified	8	8.6
31.	*Aglaia* sp.	11	12.7

Tree No.	Species	Height m	Diamter cm
	C. Transect III (Fig. 4)		
1.	*Livistona saribus*	18	20.7
2.	*Aquilaria malaccensis*	13	21.0
3.	*Aquilaria malaccensis*	6	6.9
4.	*Millettia* sp.	26	54.0
5.	*Aquilaria malaccensis*	7	19.6
6.	*Aquilaria malaccensis*	7	10.5
7.	*Aquilaria malaccensis*	10	12.7
8.	*Drypetes longifolia*	7	7.3
9.	*Aquilaria malaccensis*	20	29.6
10.	*Endospermum diadenum*	28	60.3
11.	*Dipterocarpus costatus*	23	50.9
12.	*Diospyros areolata*	11	12.7
13.	Unidentified	22	25.3
14.	*Diospyros areolata*	11	12.7
15.	*Diospyros undulata*	4	7.0
16.	*Diospyros areolata*	8	8.6
17.	*Eugenia* sp,	27	65.5
18.	*Diospyros areolata*	6	7.3
19.	*Antidesma sootepensis*	7	10.2
20.	*Payena* sp.	16	24.3
21.	*Payena* sp.	10	11.4
22.	*Goniothalamus* sp.	8	7.9
23.	*Payena* sp.	16	28.3
24.	*Aquilara malaccensis*	4	6.0
25.	*Payena* sp.	8	11 4
26.	*Vatica cinerea*	30	71.9
27.	*Antidesma sootepensis*	11	16.5
28.	*Payena* sp.	9	13.7
29.	*Hunteria zeylanica*	6	6.7
30.	*Diospyros sumatrana*	7	4.5
31.	*Antidesma sootepensis*	7	6.4
32.	*Flacourtia jangomas*	4	6.4
33.	*Payena* sp.	14	25.5
34.	*Diospyros areolata*	7	10.8
35.	*Diospyros areolata*	5	5.4
36.	*Diospyros areolata*	8	6.9
37.	*Diospyros areolata*	8	11.4
38.	*Diospyros undulata*	7	6.4
39.	*Goniothalamus* sp.	13	16.9
40.	*Eugenia* sp.	26	85.9
41.	*Eugenia* sp.	28	79.5
42.	*Payena* sp.	12	15.6
43.	*Prismatomeris* sp.	4	6.4
44.	*Flacourtia jangomas*	8	8.6
45.	*Xerospermum intermedium*	26	62.7
46.	*Diospyros sumatrana*	10	9.5
47.	*Diospyros sumatrana*	9	6 0
48.	*Antidesma sootepensis*	10	12 4
49.	*Anisoptera oblonga*	26	51.9
50.	*Dipterocarpus costatus*	15	15.6
51.	*Diospyros sumatrana*	8	8.6
52.	*Vatica cinerea*	12	9.8
53.	*Dipterocarpus costatus*	13	11.4
54.	*Prismatomeris* sp.	4	6.4
55.	*Dipterocarpus grandiflorus*	26	48.7

Tree No.	Species	Height m	Diamter cm
	D. Transect IV (Fig. 5)		
1.	*Vatica cinerea*	22	59.9
2.	*Diospyros sumatrana*	8	7.6
3.	*Diospyros sumatrana*	11	10.2
4.	*Diospyros sumatrana*	14	9.5
5.	*Parishia insignis*	7	6.9
6.	*Diospyros sumatrana*	10	9.2
7.	*Bouea oppositifolia*	20	40.9
8.	*Eugenia* sp.	15	26.6
9.	*Antidesma sootepensis*	7	9.2
10.	*Diospyros sumatrana*	9	10.2
11.	*Antidesma sootepensis*	5	9.5
12.	*Diospyros sumatrana*	6	6.7
13.	*Parishia insignis*	16	25.5
14.	*Diospyros undulata*	19	48.7
15.	*Eugenia* sp.	18	67.8
16.	*Tarenna* sp.	8	13.7
17.	*Dipterocarpus costatus*	26	98.3
18.	*Parishia insignis*	6	7.9
19.	*Diospyros undulata*	9	12.7
20.	*Prismatomeris* sp.	7	6.4
21.	*Ardisia* sp.	7	6.0
22.	*Diospyros areolata*	19	9.9
23.	*Ardisia* sp.	8	6.0
24.	*Swintonia griffithii*	24	60.8
25.	*Diospysos undulata*	10	7.3
26.	*Diospyros areolata*	6	5.7
27.	*Diospyros areolata*	11	10.2
28.	*Diospyros areolata*	5	7.0
29.	*Diospyros areolata*	10	7.3
30.	*Parishia insignis*	9	17.2
31.	*Payena* sp.	19	40.5
32.	Unidentified	23	49.0
33.	*Parishia insignis*	16	50.9
34.	*Payena* sp.	20	42.0
35.	*Parishia insignis*	12	16.5
36.	Unidentified	21	43.6
37.	*Diospyros sumatrana*	6	5.7
38.	*Swintonia griffithii*	8	6.9
39.	*Swintonia griffithii*	12	13.0
40.	*Eugenia* sp.	14	31.7
41.	*Eugenia* sp.	13	15.6
42.	*Anisoptera oblongo*	26	59.6
43.	*Eugenia sp.*	14	21.6

APPENDIX II

Plants of Surin Nua, Phangnga

Collected and identified by Chirayuphin Chantharaprasong
(The bracketed numbers are collecting numbers of C. Chantharaprasong)

ACANTHACEAE

1. *Gendarussa vulgaris* Nees (2128)
2. *Justicia* sp. (2077)

ANACARDIACEAE

3. *Mangifera* sp. (2127)

APOCYNACEAE

4. *Cerbera odollam* Gaertn. (2140)
5. *Ervatamia graciliflora* (Wall.) Lace (2065, 2131)
6. *Hunteria zeylanica* (Retz.) Gard. ex Thw. (2082, 2123)
7. *Wrightia cambodiensis* Pierre ex Pit. (2124)

ARACEAE

8. *Aglaonema* sp. (2075)
9. *Scindapsus cuscuaria* (Aublet) Presl. (2138)

ARALIACEAE

10. *Schefflera elliptica* (Bl.) Harms. (2095)

ASCLEPIADACEAE

11. *Hoya parasitica* (Roxb.) Wall. ex Wight (2101)
12. *Hoya parviflora* Wight (2099)
13. *Hoya* sp. (2108)

BORAGINACEAE

14. *Cordia subcordata* Linn. (2113)

CELASTRACEAE

15. *Salacia oblongifolia* Bl. (2058)
16. *Salacia verrucosa* Wight (2086)

CYCADACEAE

17. *Cycas rumphii* Miq. (2134)

DICHAPETALACEAE

18. *Dichapetalum gelonioides* (Roxb.) Engl. (2068)

DILLENIACEAE

19. *Tetracera scandens* (L.) Merr. (2104)

DIPTEROCARPACEAE

20. *Vatica cinerea* King (2085)

EBENACEAE

21. *Diospyros areolata* K.&G. (2062)
22. *Diospyros sumatrana* Miq. (2097)
23. *Diospyros wallichii* K.&G. (2135)
24. *Diospyros undulata* Wall. ex G. Don

EUPHORBIACEAE

25. *Aporusa aurea* Hk. f. (2096)
26. *Cleistanthus helferi* Hk. f. (2052)
27. *Drypetes longifolia* (Bl.) Pax & Hoffm. (2069)
28. *Koilodepas longifolium* Hk. f. (2120)
29. *Macaranga tanarius* (L.) Muell.-Arg. (2081)
30. *Mallotus dispar* (Bl.) Muell.-Arg. (2119)
31. *Phyllanthus reticulatus* Poir. (2132)
32. *Phyllanthus roseus* (Craib & Hutch.) Beille (2076)

FLACOURTIACEAE

33. *Homalium dasyanthum* Warbg. (2041)
34. *Scolopia spinosa* (Roxb.) Warb. (2088)

GOODENIACEAE

35. *Scaevola taccada* (Gaertn.) Roxb. (2084)

GRAMINEAE

36. *Dinochloa montana* Ridl. (2118)

GUTTIFERAE

37. *Garcinia merguensis* Wight (2053, 2092)

HERNANDIACEAE

38. *Hernandia nymphaefolia* (Br.) Kub. (2130)

HYDROCHARITACEAE

39. *Halophila ovalis* (R. Br.) Hk. f. (2080)
40. *Thalassia hemprichii* (Ehrenb.) Aschers. (2079)

ICACINACEAE

41. *Phytocrene bracteata* Wall. (2100)

LECYTHIDACEAE

42. *Barringtonia asiatica* Kurz (2141)

LEGUMINOSAE

43. *Bauhinia pulla* Craib (2054)
44. *Dalbergia floribunda* Craib (2063)
45. *Spathalobus compar* Craib (2114)

LOGANIACEAE

46. *Strychnos colubrina* Linn. (2091)

LOMARIOPSIDACEAE

47. *Bolbitis appendiculata* (Willd.) K. Iwats. (2072)
48. *Bolbitis virens* (Wall. ex Hk. & Grev.) Schott. (2071)

LORANTHACEAE

49. *Dendrophthoe pentandra* (L.) Miq. (2115)

MALPIGHIACEAE

50. *Hiptage lucida* Pierre (2107)

MORACEAE

51. *Ficus altissima* Bl. (2064)
52. *Ficus annulata* Bl. (2061)
53. *Ficus calophylla* Bl. (2116)
54. *Ficus curtipes* Corner (2093)
55. *Ficus microcarpa* Linn. (2089)
56. *Ficus superba* Miq. (2110)
57. *Ficus tinctorea* Forest. f. (2105)
58. *Ficus variegata* Bl. (2045)

OCHNACEAE

59. *Ochna integerrima* (Lour.) Merr. (2048)

OLACACEAE

60. *Anacolosa* sp. (2117)

OLEACEAE

61. *Linociera ramiflora* (Roxb.) Wall. ex G. Don (2087)

ORCHIDACEAE

62. *Dendrobium indivisum* (Bl.) Miq. (2109)
63. *Eria bractescens* Lindl. (2040)
64. *Luisia* sp.

PANDACEAE

65. *Galearia fulva* (Tul.) Miq. (2073)
66. *Microdesmis caseariifolia* Planch. (2044, 2067)

PARKERIACEAE

67. *Taenitis blechnoides* (Willd.) Sw. (2133)

POLYPODIACEAE

68. *Pyrrhosia adnascens* (G. Forst.) Ching (2050)

RHAMNACEAE

69. *Colubrina asiatica* (L.) Brongn. (2049)

RHIZOPHORACEAE

70. *Rhizophora mucronata* Lamk. (2129)

RUBIACEAE

71. *Canthium dicoccum* Merr. (2094)

72. *Canthium umbellatum* Wight (2059)
73. *Chassalia curviflora* Thw. (2046)
74. *Greenea secunda* (Griff.) Craib (2111)
75. *Guettarda speciosa* Linn. (2090)
76. *Lasianthus andamanicus* Hk.f. (2043)
77. *Mussaenda villosa* Wall. ex G. Don (2125)
78. *Ophiorrhiza communis* Ridl. (2122)
79. *Psychotria adenophylla* Wall. (2103)
80. *Psychotria lasiocephala* Ridl. (2066)
81. *Randia oppositifolia* Koord. (2055)
82. *Randia parvula* Ridl. (2051)

RUTACEAE

83. *Atalantia monophylla* (Linn.) DC. (2060)

SAPINDACEAE

84. *Xerospermum intermedium* Radlk. (2083)

SELAGINELLACEAE

85. *Selaginella* sp. (2131)

SONNERATIACEAE

86. *Sonneratia griffithii* Kurz (2112)

STERCULIACEAE

87. *Sterculia foetida* Linn.

STILAGINACEAE

88. *Antidesma sootepense* Craib (2074)

TILIACEAE

89. *Grewia umbellata* Roxb. (2042)

URTICACEAE

90. *Elatostemma latifolium* (Bl.) H. Schr. (2098)
91. *Poikilospermum suaveolens* (Bl.) Merr. (2057)

VERBENACEAE

92. *Clerodendrum inerme* Gaertn. (2137)
93. *Premna collinsae* Craib (2056)

VIOLACEAE

94. *Rinorea horneri* (Korth.) DC. (2047)

ZINGIBERACEAE

95. *Amomum aculeatum* Roxb. (2078)