

FLORA OF GREAT NICOBAR ISLAND



BOTANICAL SURVEY OF INDIA
Ministry of Environment and Forests

FLORA OF GREAT NICOBAR ISLAND

Editors

P.K. Hajra

&

P.S.N. Rao

Author

B.K. Sinha



भारतीय वनस्पति सर्वेक्षण
BOTANICAL SURVEY OF INDIA

BOTANICAL SURVEY OF INDIA

Ministry of Environment and Forests

©Govt. of India, 1999

Date of Publication : 15 August, 1999

No part of this publication can be reproduced, stored in a retrieval system, or transmitted, in any form or means by electronic, mechanical, photocopying, recording, or otherwise, without prior written permission of the Director, Botanical Survey of India.

Price :

Published by the Director, Botanical Survey of India, P-8, Brabourne Road, Calcutta-700 001 and printed at Shiva Offset Press, 14, Old Connaught Place, Dehra Dun - 248 001.

I.P. GUPTA
LIEUTENANT GOVERNOR
ANDAMAN & NICOBAR ISLANDS



RAJ NIWAS
PORT BLAIR
TEL.: 33333
RES.: 33300

FOREWORD

I am very happy to learn that the Botanical Survey of India, Andaman & Nicobar Circle is bringing out a book on the Flora of Great Nicobar Island during the Golden Jubilee Year of India's Independence.

After C.E. Parkinson published the Forest Flora of Andaman Islands in the year 1923, there has been no exhaustive floristic work published either on the Andaman Group of Islands or the Nicobar Group till date. The Botanical Survey of India, Andaman and Nicobar Circle, Port Blair established in 1972 has undertaken extensive and intensive studies on the plant diversity of the isles. While the writing of Flora of Andaman & Nicobar Islands is in progress and is envisaged to be brought out in three volumes, a special effort has been made by the Botanical Survey of India to come up with a Flora of Great Nicobar Island separately in view of the phytogeographical importance attached to this remote and southernmost island of the archipelago where most of the plant species are indigenous to the Islands.

The present publication, dealing with the native flora of insular and fragile nature and the introduced exotic species in the island ecosystem well known for its pristine glory but subjected to some human intervention, it is believed, will prove to be of immense use to the nature lovers, tourists, environmentalists, foresters and the botanists. The book may be indispensable in future for evolving viable conservation strategies in order to strike a balance between development and conservation and between developed ecosystem and natural ecosystem. The book should also create awareness amongst people against any damage to the rare and precious species that the Islands possess.

The editors and the author have done their best in bringing out the book at a time when habitat deterioration has been occurring worldwide.

A handwritten signature in black ink, appearing to read 'I.P. Gupta'.

Raj Niwas,
12-08-1998.

(I.P. Gupta)
Lieutenant Governor
Andaman & Nicobar Islands

PREFACE

The Great Nicobar Island presents varied natural panorama and is clothed with virgin lush evergreen dense tropical forests extending from sea coast to the top of hills. The forest wealth is by far the richest natural embodiment of the island and the great strength of this natural wealth lies in their utter immensity, density and vitality but even a small imbalance in this tropical ecosystem could be detrimental to the interests of the people who inhabit this island.

A report of the multidisciplinary study team constituted under the Ministry of Agriculture and Irrigation which visited this island in 1975, expressed serious concern over the deforestation which would affect the stability of the ecosystem and suggested that these areas should be made available only for scientific and conservational studies. Subsequently, the MAB National Committee of Govt. of India launched a project through the Botanical Survey of India entitled 'Status of survey of the floral constituents in the land ecosystem of Great Nicobar in the present context of changing habitats' and as a result of this endeavour, a project document was submitted in the year 1989 by Balakrishnan *et al.*, on the Great Nicobar Biosphere Reserve. There after, as a logical measure, the present elaborate floristic work is brought out to meet the needs of all those who are concerned with the nature conservation.

The guidance and useful suggestions extended by Dr. N.P. Singh, Director, BSI, Calcutta have immensely helped in bringing out the book. The encouragement given by the Ministry of Environment & Forests, the help and assistance extended by all the scientists and staff of BSI particularly those of Andaman & Nicobar Circle and the facilities and field assistance provided by the Forest Department and other departments of A & N Administration in various ways are gratefully acknowledged.

P.K. Hajra
P.S.N. Rao

CONTENTS

	<i>Page</i>
1. FOREWORD	iii
2. PREFACE	v
3. INTRODUCTION	1
4. GEOGRAPHY	2
a. DRAINAGE SYSTEM	5
b. GEOLOGY	5
c. SOIL	6
e. CLIMATE	7
5. VEGETATION	7
a: LITTORAL	8
b: INLAND	10
6. MAN MADE VEGETATION	12
7. BOTANICAL HISTORY	13
8. STATUS OF PLANT EXPLORATION	15
9. ANALYSIS OF THE FLORA	15
10. PHYTOGEOGRAPHY	18
11. CONSERVATION MEASURES PROPOSED	47
12. UTILISATION ASPECTS OF THE FLORA	48
13. ETHNOBOTANY	52
14. DOUBTFUL AND EXCLUDED SPECIES	57
15. SELECTED BIBLIOGRAPHY	60
16. FLORA (SYSTEMATIC ENUMERATION)	
a. PTERIDOPHYTES	74
b. GYMNOSPERMS	120
c. ANGIOSPERMS	
i. DICOTYLEDONS	122
ii. MONOCOTYLEDONS	418
17. INDEX	509

INTRODUCTION

The Great Nicobar island is the southernmost island of the Andaman & Nicobar archipelago, situated between 6°45'N and 7°15' N lat. and 93°38' and 93°55'E long. The island presents varied natural panorama and is covered with virgin lush evergreen dense tropical forests extending from sea coast to the hill tops. The forest wealth is by far the richest natural endowment of the island. The great strength of this natural wealth lies in their utter immensity, density and vitality. The tropical humid climate with heavy rainfall facilitates dense floristic growth and everything on these islands grows with utmost insane vigour. The forests of Great Nicobar are not far away from the equator, hence the tropical ecosystem in this island is so enormous, complex, delicate and fragile. The island occupies a phytogeographically strategic position between mainland India, Myanmar, Thailand on one hand and Sumatra and Malay Peninsula on the other. The island supports a unique combination of floral and faunal assemblage, high degree of endemism and fragile ecosystem with the result the Ministry of Environment and Forests, Govt. of India, has declared this diversity rich island as Biosphere Reserve (see Map-2) on 6th January, 1989. The main objectives of the Biosphere reserves are:

1. They are the protected areas of representative terrestrial and coastal environments recognised world wide for their value in conservation.
2. They are representative examples of natural or minimally disturbed ecosystems.
3. The extent and size of such areas is large enough to function as a unit of conservation.
4. Adequate long term legislative, regulatory and institutional protection is available.
5. Peoples are a part of the biosphere reserves.
6. No changes of land holding are brought about in a biosphere reserve, especially in core zone.
7. Biosphere reserve functions as an open system.

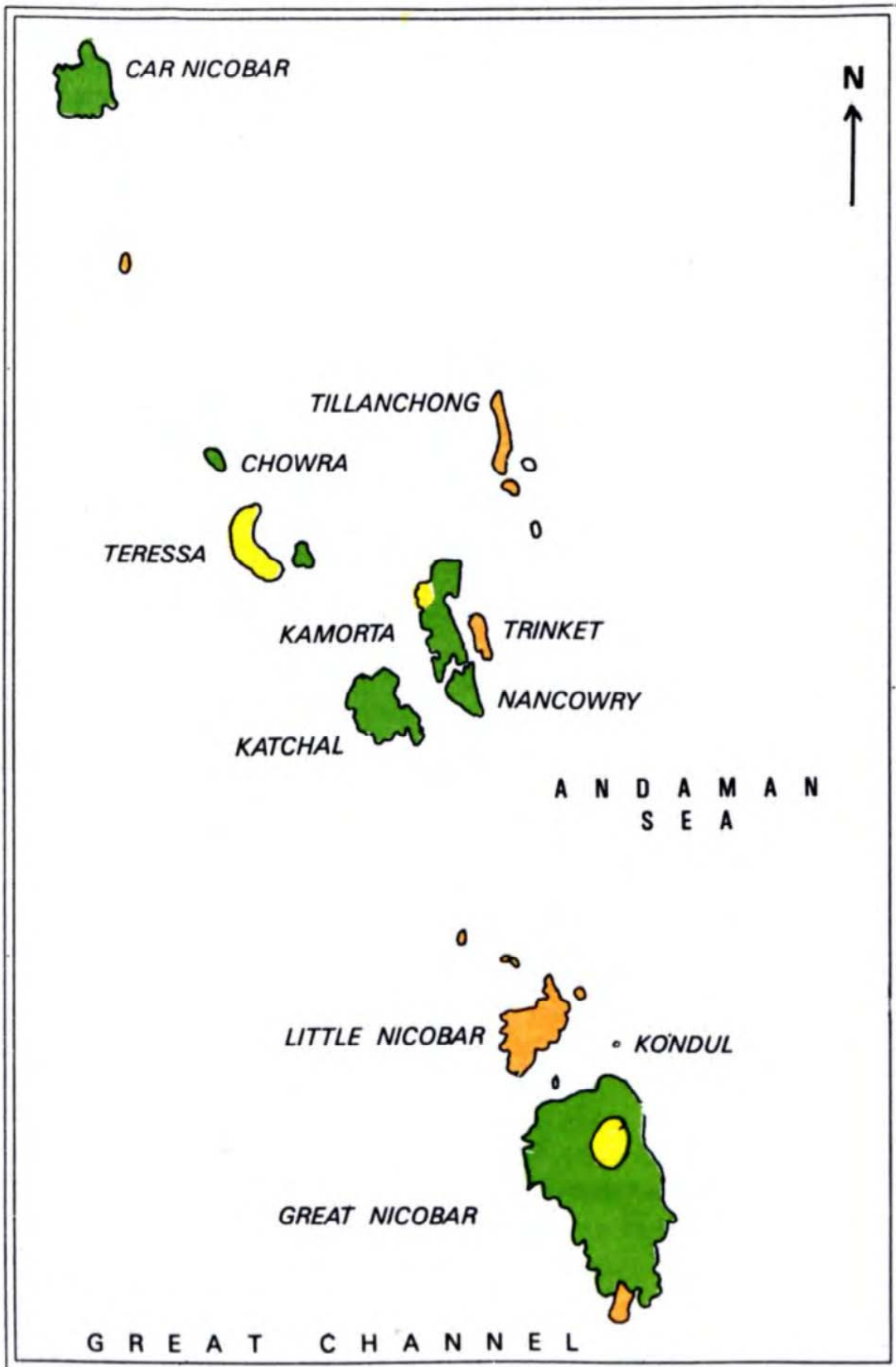
Keeping all these objectives in view, the floral inventorisation of this unique phytogeographically important island is an urgent need, because it is the only remnant virgin tropical rain forest in Andaman & Nicobar Islands, southernmost in India and east of Malay Peninsula. The Botanical Survey of India has decided to prepare the flora of this island and launched the project in this circle as '*Floristic Diversity of Great Nicobar Island*' The main objectives of this work are :

1. To explore the rich and underexplored area of this island, extensively and intensively.
2. To publish a comprehensive floristic account on the plant wealth of this island.
3. To collect and reintroduce the rare, endemic, endangered and economically useful plant species for conservation of the germplasm.
4. To compare and evaluate the floristic elements of the islands (i.e. Phytogeography).
5. To compare and evaluate the utilisation aspect of the flora i.e. food, medicinal plants, timber etc.
6. To document the ethnobotanical data from the existing literature and from field work.

GEOGRAPHY

The Great Nicobar Island, the southernmost island of Andaman & Nicobar archipelago and in fact the southernmost land piece of India (situated between 6° 45' and 7° 15' N latitude and 93° 37' E and 93° 56' E longitude) lies about 482 km south of Port Blair and about 145 km north of Sumatra and covers an area of 1045 square km. The island is about 55 km long between Murray point in the north to Indira point in the south. It has a width of about 30 km in the north but the island narrows down to only about 3 km in southern tip (See Map 1, 2).

The island is highly rugged with very narrow flat land along the sea coasts and hill ranges running in north south direction. The reef consists

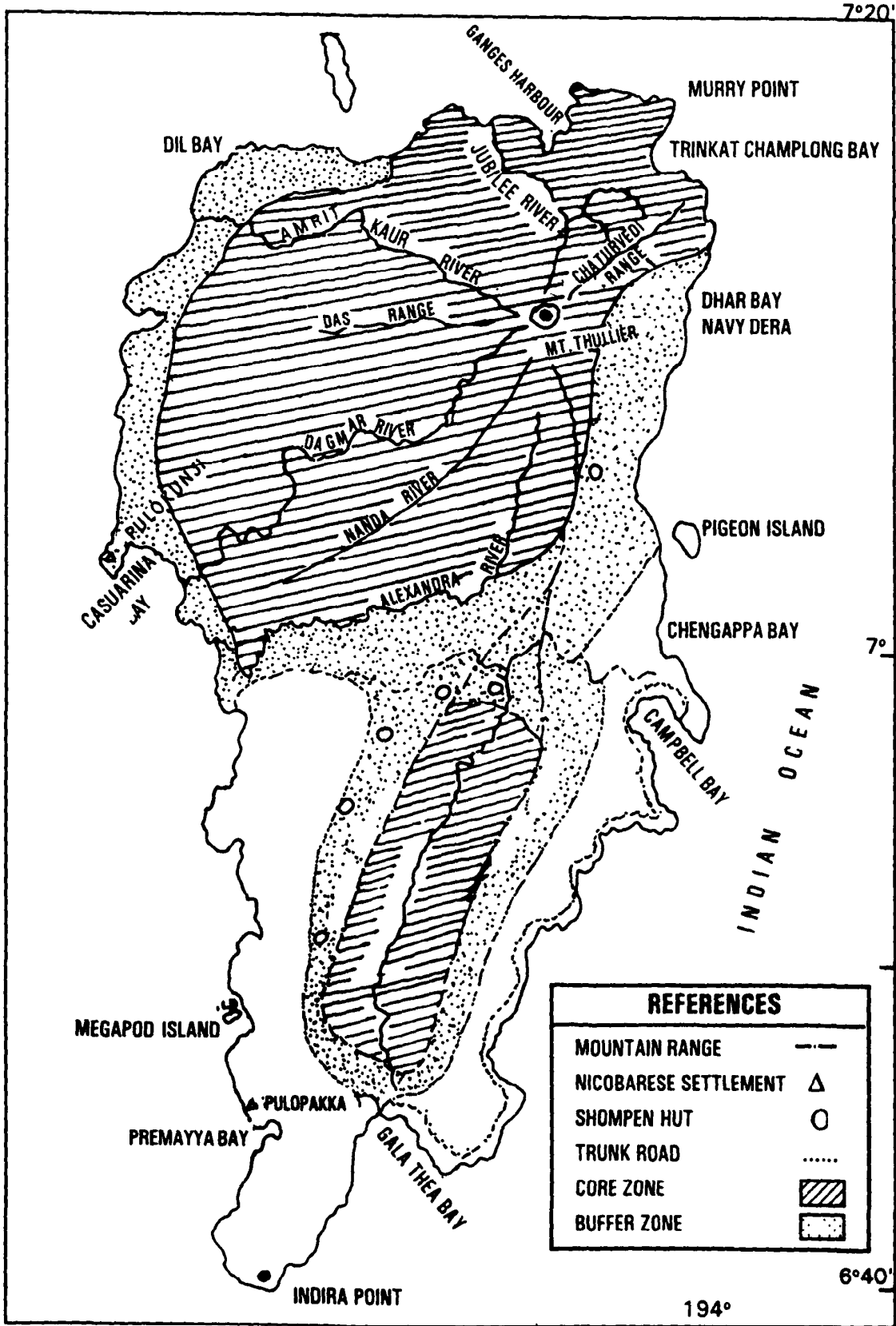


MAP OF NICOBAR

GREAT NICOBAR

10 km

BIOSPHERE RESERVE



Map 2

of numerous spurs and ridges enclosing narrow valleys which culminate in a peak known as the Mt. Thullier (670 m above m.s.l.). From this peak, 5 main ranges of hills radiate i.e. Das range, Chaturvedi range, Nanda range, Shani range and Mani range. These hill ranges rise abruptly to substantial height from the seashore/resulting in a spectacular panoramic view of the island.

The coastline is highly indented and several creeks penetrate into the island from inland bays. Some of the bay mouths are studded with several damaged and partially submerged rocky pinnacles which become visible at low tide. The principal bays around the island are Galathea, Casuarina, Ganges harbour, Valdora and Trinkat Champlong. The coastline is generally coralline with magnificent coral reefs at certain places, extending far away from the shoreline, providing ideal situations for underwater photography. There are practically no deep lagoons.

DRAINAGE SYSTEM

Five perennial rivers Alexandra, Dogmar, Amrita Kaur, Jubilee and Galathea with their several tributaries constitute the main drainage system of the island. Apart from these, there are about 25 small fresh water streams originating from hilly ranges and flowing into the sea. Such fresh water resources of the island enjoy unrivalled position among the whole of Andaman & Nicobar Islands.

GEOLOGY

Great Nicobar island is continental in nature and cannot be studied in isolation from Andamn & Nicobar group of Islands which forms a continuation of Arakkan Yoma range of Myanmar in the north to Sumatra of Indonesia in the south. These groups of islands are projections of a long narrow submarine range with only the peaks of which are visible above sea. Geologically quite young in age, probably formed sometimes in upper Mesozoic (*ca* 100 milion years ago), the mountain range has a narrow deep oceanic furrow on the western boundary which abuts on the main Indian plate on the west.

These are three important geological formations for the entire southern group of Nicobar Islands. Firstly, erruptive serpentine and gabbre formations; secondly marine deposits of younger tertiary age composed

of sandstones, slates, clay marls and plastic clay; and thirdly, coral-reef formations of recent origin. The rock formations are of younger tertiary age and are geologically similar to the south west coast of Sumatra (Rink, 1847; Hochstter, 1869). With the exception of some sand stone hills on the northern coast and the sand stone mountain ranges on the eastern side of Galathea Bay in the south, nothing is known so far about the interior geology of this island. The principal nature of the rock can be said as soft micaceous and sandstone and are younger in origin than the Andamans.

SOIL

The soils of the island are immature, loose in texture, poor in drainage and low in moisture retaining capacity. They are made chiefly of soft micaceous sandstones, silt stones and clay beds with minor occurrence of basaltic rocks and gravelly sandstone beds. Sandy alluvial soils resulting from the deposition of fine material from the higher slopes in the saline swamps and creeks, support the mangrove forests that fringe the islands sheltered coasts and inland creeks. The coralline alluvium on the beaches along the coasts supports rich tree vegetation. In flat lands along stream banks, the soil is fresh water alluvium. The rich grey, brown and red soils derived from the calcareous sandstones support the luxuriant tropical forest vegetation. Heavy clays to clay loams are found mostly in valley areas. Soil depth varies with slopes, shallow soils characterising higher elevations and deep soil in the valleys and river sides. The profile shows no visible stratification into horizons.

The high rainfall causes an almost continuous percolation of water through the streams and beaches into the sea and the soils have very low moisture retaining capacity. Humus or organic matter is comparatively poor even in hill forests, they being washed away by the heavy rainfall assisted by the steep slopes and loose texture of soils. The soils are highly permeable and thus strongly leached. There is no humus enrichment of the rain forests because of rapid decomposition of organic matter. Thus the soils of the rain forests of Great Nicobar Island are generally poor in nutrient content which is a characteristic feature of the tropical 'Ombrophilous' forests. This is due to the fact that in tropical rain forests favourable climatic conditions facilitate quick mineralisation and dead biotic materials and the released nutrients are immediately absorbed by the roots of dense vegetation. Therefore, the amount of nutrients in

the soils at any instance of time is considerably reduced. The entire nutrient capital necessary for the continuous growth of this lush type of tropical vegetation is tied up in the living plant itself.

CLIMATE

The temperature ranges from 22°-32°C with the mean relative humidity of about 82%. The annual rainfall in the northern part of island is 3800 mm while in south it is about 3000 mm. April is the hottest month of the year. Monsoon months are April to December. The months of January to March show fairly dry weather. The island is subject to gales and cyclonic winds blowing west to east and east to west changing with the monsoons and sudden depression in the sea around.

VEGETATION

The following account of the vegetation of Great Nicobar Island is based mainly on several field trips conducted so far by A & N circle and earlier vegetational accounts published by Sahni (1953), Thothathri et al., (1973) and Balakrishnan et al., (1989).

The vegetation of Great Nicobar can broadly be classified into following major groups :

- A. LITTORAL :**
1. Sandy beach formation
 - a. Herbaceous beach vegetation
 - b. Shrubby beach vegetation
 - c. Woodland beach vegetation
 - d. *Casuarina* forests
 - e. *Pandanus* vegetation
 - f. Mixed littoral forests
 2. Mangrove vegetation
 - a. Mangrove shrubs
 - b. Mangrove forests
 - c. *Nypa* palm swamp
- B. INLAND :**
1. Low land swamp
 - a. *Pandanus* swamp
 - b. *Areca* swamp

2. Evergreen hill forests
 - a. Mixed evergreen forests
 - b. Pure evergreen forests
3. Man made vegetation
 - a. Coconut plantations
 - b. Secondary formations

A. LITTORAL :

1. Sandy Beach Formations :

This formation starts from the proximity of seashore to about 30-50 m interior of the island. These areas are not usually inundated by sea water, however, sometimes during storms high waves splash over them. This formation can be classified into the following groups :

(a) *Herbaceous beach vegetation* : This includes both submerged and non-submerged plants. Among the plants growing submerged in sea water along shallow beaches are various types of algae, and sea grasses like *Enhalus acoroides* and *Halodule uninervis* etc. on open exposed sandy beaches we get the dominant creepers like *Ipomoea pescaprae* and *Vigna marina*. This is intermingled with grasses like *Ischaemum muticum* and *Thuarea involuta* and the sedges like *Cyperus pedunculatus*. The parasitic angiosperm *Cassytha filiformis* is also found in this area.

(b) *Shrubby beach vegetation* : Immediately behind herbaceous vegetation, one can find taller shrubby formations. *Scaevola sericea*, which often forms gregarious dense hedge-like formations facing sea, is the most dominant species in this area. Associated with it are *Dendrolobium umbellatum*, *Sophora tomentosa*, *Argusia argentea*, *Atalantia monophylla* and *Cordia subcordata*. The spiny straggler with yellow flowers, *Caesalpinia bonduc* is also common at certain places. These shrubby formations are often densely entangled with climbers such as *Flagellaria indica* and *Vigna marina*.

(c) *Woody beach vegetation* : The most dominant tree species along the beaches is *Barringtonia asiatica*. This is associated with other trees such as *Pongamia pinnata*, *Calophyllum inophyllum*, *Glochidion calocarpum*, *Hernandia nymphaeifolia*, *Guettarda speciosa* and *Heritiera*

littoralis. The ground floor in this woody vegetation is sparse and consists of *Crinum asiaticum*, *Tacca leontopetaloides* and *Dracaena angustifolia*. The common epiphytes found in these forests are *Asplenium nidus*, *Phymatosorus scolopendria*, *Dendrobium crumenatum* and *Trichoglottis cirrhifera* are also commonly found.

(d) *Casuarina forests* : Along some beaches in this island especially on the west coast near the mouths of Alexandra and Dogma rivers, pure stands of *Casuarina equisetifolia* are found growing naturally. Sometimes they are associated with *Pandanus odoratissimus*.

(e) *Pandanus vegetation* : At several places along the open beaches, one can find pure stands of *Pandanus odoratissimus*, extending to wide areas.

(f) *Mixed littoral forests*: This zone lies just behind the beach forest and stretches for some distance interior. The demarcation between woodland beach forests and littoral forests are not clear at several places. This forest is characterised by the abundance of palms in the shrub and lower tree layers and many trees being laden with climbers and rattans. Epiphytes are particularly the ferns. The dominant canopy trees are *Terminalia bialata*, *T. procera*, *Mangifera camptosperma*, *Syzygium samarangense*, *Barringtonia racemosa*, *Heritiera littoralis* and occasionally associated with some sparsely distributed Coconut palms. The shrubby *Tabernaemontana* vegetation is composed of *Atalantia monophylla*, *Ardisia solanacea*, *Tabernaemontana crispa* and *Hedyotis paradoxa* etc. The herbaceous vegetation is very poorly developed. Climbers like *Calamus andamanicus*, *Dinochloa scandens*, *Thunbergia laurifolia*, *Schefflera elliptica*, *Mucuna gigantea*, *Uvaria cordata* and *Poikilospermum suaveolens* are usually seen in these forests. Epiphytic orchids like *Aerides emericii* and *Cleisostoma uraiensis* are common.

2. Mangrove vegetation :

Mangroves, the characteristic vegetation of the coastal tidal zone, play valuable and critical role in the coastal systems and maintain high level of carrying capacity since they are closely correlated with conditions of soil, topography, climate, tidal patterns, salinity of water, soil drainage and aeration. They can be zoned into different communities, each occupying its own ecological niche and dominated by a few species for

adaptations with their environment, they are characterised by frequent presence of pneumatophores, stilt roots and viviparous fruits.

(a) *Mangrove scrub* : The scrubby vegetation of pioneering mangroves like *Acanthus volubilis*, *Acrostichum aureum* and *A. speciosum* are also found on the seaward side on muddy shores. Further seawards occur small trees of *Sonneratia caseolaris* and *Excoecaria agallocha*.

(b) *Mangrove forests* : Mangrove forests usually have dense canopy. Its undergrowth is very sparse and climbers and epiphytes are rare, though they are common in interior areas. The common tree species are : *Rhizophora apiculata*, *R. mucronata*, *R. stylosa*, *Carallia brachiata* and *Sonneratia caseolaris* etc. The common climbers and epiphytes are *Hoya parasitica*, *Dischidia bengalensis*, *Derris trifoliata* and also a few Orchids and Ferns.

(c) *Nypa palm swamp* : It covers riverine swampy areas and estuaries and are subject to daily brackish water flooding. They also line tidal creeks where fresh and salt water meet and mix. Very frequently it forms pure stands with a closed canopy without any undergrowth. The most common species is *Nypa fruticans*, sometimes associated with *Dolichandrone spathacea* at the creek mouth.

B. INLAND :

1. **Low land swamp** : This type of vegetation is found in the low land areas near the major banks of rivers of the islands and the low land forest of the littoral zones. It depends generally on depth and quality of water, drainage and flooding conditions.

(a) *Pandanus swamp* : Far away from the seashore in the low land areas, near the water courses, where the soil is moist and swampy due to heavy downpour, *Pandanus leram* var. *andamanensium* generally occurs in large populations.

(b) *Areca swamp* : Due to heavy rain, the lowland forest floors get inundated with water often remaining stagnant for long time. This is commonly seen in littoral zone of certain areas where the wild *Areca catechu* grows abundantly. This is often associated with *Syzygium*

samarangense, *Ficus rumphii*, *Terminalia bialata*, *Pandanus odoratissimus* and *Mangifera camptosperma*.

2. **Evergreen hill forests** : The tropical humid rain forests of Great Nicobar Island are basically broad-leaved, multistoried and evergreen with some deciduous elements, comprising of tall canopy and supporting diverse life forms of palms, climbers, epiphytes and ferns. These luxuriant rain forests are very rich both floristically and structurally. The forest structure is irregular and diverse throughout all layers. The canopy is very variable in height, coverage and crown sizes. This can broadly be classified into two groups :

(a) *Mixed evergreen forests* : At low altitudes littoral and mixed evergreen forests are often intermixed with each other depending on topography. However pure deciduous formation is practically absent. The major deciduous and semi-deciduous trees occupying this low level, undulating, less moist ground are *Artocarpus gomeziana*, *Terminalia catappa*, *T. bialata*, *T. citrina*, *Neolamarckia cadamba*, *Dehaasia candolleana* and *Lagerstroemia ovalifolia* etc. associated with several evergreen elements which gradually merge into evergreen hill forests. A characteristic gymnosperm *Gnetum gnemon* occurs scattered in this region. The ground layer occasionally becomes wet, due to lack of penetration of light through the closed canopy. Several species of *Aglaonema simplex*, *Piper* spp. and *Hetaeria obliqua* occupy the ground layers, whereas epiphytes like *Asplenium nidus*, *Nephrolepis* spp., *Pholidota pallida*, *Luisia zeylanica* and *Pteroceras barkeleyii* etc. are seen on the evergreen trees. Rare palms like *Rhopaloblaste angusta* and *Pinanga manii* are found in this transitional zone.

At low altitudes, along small perennial rivers, the characteristic fern *Cyathea albo-setacea* and the giant leaved fern, *Angiopteris evecta* grow luxuriantly. Shrubs like *Grewia calophylla*, *G. acuminata*, *Mussaenda* spp., *Ziziphus rugosa*, *Leea indica*, *L. grandifolia*, *Macarranga peltata*, *M. nicobarica*, *Clerodendrum innerme*, *C. viscosum* and *C. paniculatum*. Trees like *Antidesma* spp., *Ficus* spp., *Chisocheton grandiflorus*, *C. nicobarianus*, *Elaeocarpus macrocerus* and *E. aristatus* and herbs like *Tournefortia ovata*, *T. tetrandra*, *Stauranthera grandiflora*, *Rhynchoetechum parviflorum*, *Goodyera procera*, *Homalomena cordata*, *H. nutans* and *Coelorachis glandulosa* are found along the streams. A liana with pendulous branches *Indorouchera griffithiana* and epiphytes like

Aeschynanthus volubilis, *Hoya parasitica* and *Pothos macrocephalus* are frequently confronted. Several epiphytic orchids and ferns are found in this humid environment.

(b) *Pure evergreen forests* : Moderate temperature and excessive rainfall are the main factors responsible for the luxuriant growth of the rich tropical evergreen humid forests. This type of formation occurs on low and high hills and valleys in the interior of the island. The top soil here is fertile with abundant humus, which mainly influences the structure and distribution of the species composition. The tall evergreen trees are *Calophyllum soulattri*, *Sterculia macrophylla*, *Planchonella firma*, *Palaquium semarum*, *Aphanamixis polystachya*, *Horsfieldia irya*, *Actephila excelsa*, *Fagraea racemosa*, *F. auriculata*, *Aglaia* sp., *Knema andamanica* ssp. *andamanica*, *Chydenanthus excelsus*, *Litsea glutinosa*, *Elaeocarpus aristatus*, *Dysoxylum densiflorum*, *Nephelium uncinatum*, *Pometia pinnata*, *Kibara coriacea*, *Nothophoebe panduriformis* and *Ficus* spp.. Often these are associated with climbers like *Freycinetia insignis*, *Dinochloa scandens*, *Merremia peltata*, *Bauhinia stipularis*, *Dioscorea* spp. *Fibraurea tinctoria*, *Tinomisium petiolare* and *Aristolochia tagala* etc. Clumps of Bamboos are rarely seen in thickets along the rivers of water courses. Different shrubs like *Oxyceros longiflora*, *Saurauia bracteosa*, *Cyrtandroemia nicobarica*, *Melastoma affine*, and lianas like *Rourea minor* are also seen. Besides several pteridophytes and orchids are also observed. Tree Ferns (*Cyathea albo-setacea*) are also frequently dispersed along the hilly slopes of the forests.

3. Man made vegetation :

Nicobarese, the coastal tribals occupying mostly the west coast of the island, are mainly dependent on coconut and hence they have cleared the coastal vegetation and replaced it with Coconut plantations in and around their villages.

Shompens, the aboriginal, nomadic tribe living in the interior dense forests, also raise some cultivated plants like *Musa*, *Pandanus*, *Cocos*, *Capsicum*, *Citrus*, *Nicotiana* and *Colocasia* etc. However, they do not destroy any large tracts in the forests and are not responsible for large scale deforestation.

Botanical History :

The flora of this island is unique as well as diverse in species content. According to Jacobs (1978), the flora is closely related to the Sumatran flora.

During the year 1845-47, the Austrian Frigate 'Novora' headed by Dr. Von Hochstetters, a geologist, studied the geology and geography of the Nicobar Islands and Mr. Jelinek, a member of the team, collected a few plants from the Nicobar Islands. Between, 1847-1849, Commodore Steen Bille made the famous expedition of the Danish Corvette 'Galathea' and touched the Great Nicobar Islands and collected some plants which were enumerated together with an account of the vegetation and was published in Danish language in 1849. Subsequently N. Wallich translated it into English in 1850. In 1863 Rev. Parish, botanised the islands and his collections were deposited in *CAL* and *K* herbarium. S. Kurz described several new plants from the Nicobar Islands and gave a detailed sketch of the vegetation following his systematic exploration between 1866 to 1876.

Sir David Prain (1891) conducted a series of botanical explorations to these islands and described the vegetation of Nicobar (especially Car Nicobar) Islands.

Boden Klos (1903), and explorer visited these islands and wrote a book on Andaman & Nicobars where he mentioned the names of many plants used by the local tribes for various purposes.

During 1952 Sahni visited the Great Nicobar Island along with the forest officials to assess the timber wealth of the island. He collected more than 150 specimens and published an account in 1953. His observations on mangroves as a whole on Andaman & Nicobar Islands along with discussions on its economical potentialities appeared in 1958.

Thothathri and his associates made a joint scientific expedition in 1966 to explore and assess the plant wealth of the Great Nicobar Island. The result of this expedition was published in 1973 which includes enumeration of 335 species and accounts on the vegetation, flora, phytogeography and economical potentialities from the botanical point of view.

Balakrishnan (1976-1979) undertook three visits to this island and his survey work resulted in several novelties including new species, new distributional records, endemic and rare species etc. A list of rare and endangered, endemic plants of the whole Andaman & Nicobar Islands has been published by him during 1977-88. He also made extensive studies on the wild populations of *Areca* and *Cocos* in these islands.

Subsequently Balakrishnan & Vasudeva Rao (1983) have published the dwindling plant species of Andaman & Nicobar Islands. The Ministry of Environment & Forests, New Delhi published Project Document-II on the Great Nicobar Biosphere Reserve in 1989 under the MAB Programme which was prepared by Balakrishnan *et. al.*

Besides these, several other interesting papers have been published on the plant resources of this island under different headings viz., Taxonomical notes, new species, new distributional records, endemic and rare species; Phytogeography; Economic & Ethnobotanical aspects; Ecology and Family revision work etc.

After launching the project in the Botanical Survey of India, Andaman & Nicobar Circle in January 1994 four exploration trips have been made so far. The area was frequently visited to record in detail seasonal variations and to collect plants in different developmental stages. The specimens were identified with the help of available literature, proper dissection of the materials and finally by comparing with the authentic herbarium sheets.

The present comprehensive floristic account of the Great Nicobar Island is the outcome of three years (1994 to 1996) intensive and extensive floristic studies on the area and on the basis of existing herbarium collections at *PBL* and published research papers.

The arrangement of the families followed in the present work is based primarily on Bentham & Hooker's (1862-1883) system of classification in general, as is followed in most of the floras published in India. However, a number of cases, the circumscription of the families has been restricted after Hutchinson (1959) and Airy Shaw (1973). The genera under family and the species under the genus have been arranged in alphabetical order for the sake of convenience. Classification of Pteridophytes has been according to Pichi-Sermolli (1977, 82) and Ching (1978).

Indented keys have been provided for the genera and species. These keys are artificial and are largely based on exomorphic characters.

The nomenclature of plants has been made as far as possible up to date as per ICBN 1994.

For each species latest botanical names have been given with full citation. Selective bibliography is appended at the end of the flora.

STATUS OF THE PLANT EXPLORATIONS :

About 80% of the total geographical area is explored extensively and intensively and the remaining 20% of the area (Mt. Thulliar part) is inaccessible and unexplored (see Map 3.).

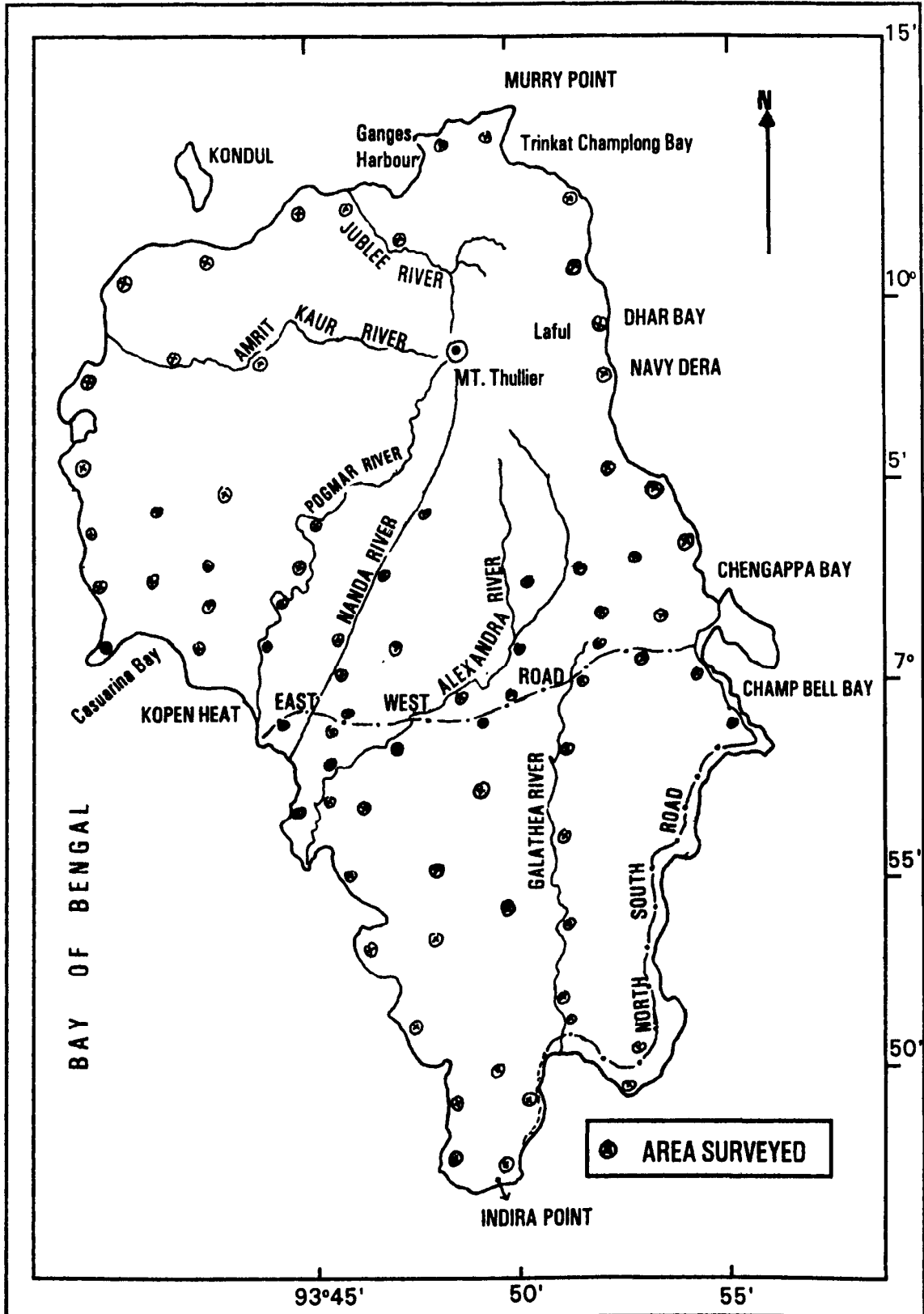
ANALYSIS OF THE FLORA :

The analysis of the flora of the Great Nicobar Island has been drawn up on the basis of material studied and identified so far (upto January 1996) both from herbarium (*PBL*) materials as well as our collections from the fields.

The following floristic accounts include the angiosperms, pteridophytes and gymnosperms comprising 648 species, 422 genera and 142 families (see Table 1).

Table 1
Floristic Analysis of the Flora

Groups	Families	Genera	Species	Endemic species	Extended distr.
Pteridophytes	32	47	77	2	22
Gymnosperms	2	2	3		1
Dicots	89	287	438	65	154
Monocots	19	86	130	22	34
Total	142	422	648	89	211



Map 3

The ten largest families in the area in order of their highest representation of the species are Euphorbiaceae, Rubiaceae, Orchidaceae and Cyperaceae (see Table 2).

Table 2
Largest Families of the Flora of Great Nicobar

Families	Genera	Species
Euphorbiaceae	19	39
Rubiaceae	23	37
Orchidaceae	27	31
Cyperaceae	7	28
Poaceae	20	26
Annonaceae	8	16
Fabaceae	10	14
Moraceae	3	13
Menispermaceae } and Meliaceae }	11 & 6	12
Asteraceae & } Verbenaceae }	9 & 7	11

A comparison between ten largest families of Great Nicobar Island and with those given in Hooker (1904) '*Flora of British India*' is given in Table-3. The position of Euphorbiaceae is first in present flora which is fifth in Flora of British India. The position of Orchidaceae is first in Flora of British India while it is third in present flora. The position of other families too vary in both cases. In the present flora Fabaceae, Caesalpiniaceae and Mimosaceae are treated separately while Hooker included them under Leguminosae.

Table 3
**The Comparison between Ten Largest Families of Great
 Nicobar Island with Flora of British India**

Flora of Great Nicobar	Hooker's Flora British India
Euphorbiaceae	Orchidaceae
Rubiaceae	Leguminosae
Orchidaceae	Poaceae
Cyperaceae	Rubiaceae
Poaceae	Euphorbiaceae
Annonaceae	Acanthaceae
Fabaceae	Asteraceae
Moraceae	Cyperaceae
Menispermaceae	Lamiaceae
Asteraceae	Urticaceae

PYTOGEOGRAPHY

An analysis of the distribution of the floristic elements occurring in the area was made to understand the phytogeographical affinity on one hand and to find out the endemic content of the flora on the other.

The presence of over 648 species within a land area of 1045 sq km is a significant feature of Great Nicobar Island becoming a cynosure not only for plant taxonomists but also for conservationists. The rare and distinct flora which evolved through millions of years due to insular nature of the territory, physical isolation between the islands and also from the neighbouring continental land masses is unique to India. Though related to mainland Indian flora, the flora of Great Nicobar shows much closer affinity with Malaysian Archipelago (i.e. Sunda biogeographical zone) representing 422 genera belonging to 142 families. Out of these about 13.11% of the species are endemic to the Island (see Table 4). Among the non endemic species about 32.25% are not found in mainland India but extend their distribution to south east Asia including Malay Peninsula, Java, Sumatra, Thailand & Myanmar (see Table 5). As the flora of the Great Nicobar island is essentially Malaysian it is also called as subcontinental island flora (Balakrishnan, 1989).

The flora of Great Nicobar is distinctly different from Andaman islands which is evident from the fact that the genera *Otenthera* and *Astronia* of Melastomataceae, *Cyrtandromea* of Scrophulariaceae, *Cyrtandra* of Gesneriaceae, *Stemonurus* (Icacinaceae), *Rhopaloblaste* from Arecaceae and *Spathoglottis* of Orchidaceae and many more species so common in Great Nicobar Island are totally absent in the Andaman Islands.

The striking dissimilarities between the Great Nicobar flora and Andaman flora are owing to reason that Great Nicobar has more species common with Malaysian in the east and Indonesia in the south while Andaman Islands have more species common to N.E. India, Myanmar & Thailand.

The climatic conditions of the Western Ghats of Peninsular India & Sri Lanka are similar to that of Great Nicobar island as all these areas lies in the tropical zone and experience heavy rainfall from south west and north east monsoon. Although both the zones are not contiguous but separated from each other by the Bay of Bengal, they show striking resemblance in their floristic composition. Several rare plants especially orchids common to Peninsular India and Great Nicobar are *Corymborkis veratrifolia*, *Dendrobium sp.*, *D. crumenatum* and *Eria bractescens*. Other species which have common distribution are *Burmannia championii*, *Floscopa scandens*, *Myxopyrum smilacifolium* and several other species.

Thus the Great Nicobar islands are characterised by a rare and distinct flora, although exhibiting phytogeographical affinity with the neighbouring biogeographic zones of Malaysian and Indonesian species and Peninsular biogeographical zones of mainland India by virtue of which the island constitute a transitional zone phytogeographically. The floristic analysis also indicates that while 13.11% species are endemic to the island, about 54.62% are also occurring in mainland India. The remaining 32.25% extend to the south east Asian countries like Malaysia, Sumatra & Java but not recorded in mainland India.

The island is also rich in Pteridophytic flora with about 77 species (2 endemic and 22 occurring in the adjacent neighbouring countries but not in Indian mainland) represented of which, 'Tree Fern' *Cyathea* is most interesting with significant population in this island.

Table 4
List of Endemic Plants

Plant species	Endemic to		
	Gt. Nicobar Island	Nicobar Island	A & N Islands
PTERIDOPHYTES :			
CYATHEACEAE :			
<i>Cyathea albosetacea</i>		+	
<i>Cyathea nicobarica</i>		+	
DICOTYLEDONS :			
RANUNCULACEAE			
<i>Clematis smilacifolia</i>			+
<i>var. andamanica</i>			
DILLENiaceae :			
<i>Dillenia andamanica</i>			+
ANNONACEAE :			
<i>Artobotrys nicobarianus</i>	+		
<i>Friesodielsia forniculata</i>	+		
<i>Orophea katschallica</i>			+
<i>Polyalthea parkinsonii</i>			+
<i>Pseuduvaria prainii</i>			+
<i>Uvaria nicobarica</i>	+		
MENISPERMACEAE :			
<i>Cyclea pendulina</i>		+	
STERCULIACEAE :			
<i>Sterculia cordata</i>		-	+
CLUSIACEAE :			
<i>Grewia calophylla</i>			+

Plant species	Endemic to		
	Gt. Nicobar Island	Nicobar Island	A & N Islands
RUTACEAE :			
<i>Glycosmis pilosa</i>			+
<i>G. mauritiana</i> var. <i>andamanensis</i>			+
<i>Paramignya andamanica</i>			+
MELIACEAE :			
<i>Chisocheton nicobarianus</i>	+		
<i>Dysoxylum alliaceum</i>			+
ICACINACEAE :			
<i>Codiocarpus andamanica</i>			+
<i>Gomphandra comosa</i>		+	
CELASTRACEAE :			
<i>Nicobariodendron sleumeri</i>	+		
VITACEAE :			
<i>Tetrastigma andamanicum</i>			+
LEEACEAE :			
<i>Leea grandifolia</i>		+	
ANACARDIACEAE :			
<i>Mangifera nicobarica</i>		+	
<i>Semecarpus kurzii</i>			+
CONNARACEAE :			
<i>Connarus nicobaricus</i>	+		
COMBRETACEAE :			
<i>Terminalia procera</i>			+
MELASTOMATACEAE :			
<i>Otanthera nicobarensis</i>	+		

Plant species	Endemic to		
	Gt. Nicobar Island	Nicobar Island	A & N Islands
MEMECYLACEAE :			
<i>Memecylon andamanicum</i>			+
RUBIACEAE :			
<i>Coptophyllum nicobaricum</i>	+		
<i>Hedyotis paradoxa</i>			+
<i>Ixora brunnescens</i>			+
<i>I. cuneifolia</i> var. <i>macrocarpa</i>		+	
<i>I. grandifolia</i> var. <i>kurziana</i>		+	
<i>I. grandifolia</i> var. <i>rosella</i>		+	
<i>I. tenuifolia</i>		+	
<i>Ophiorrhiza infundibularis</i>	+		
<i>O. nicobarica</i>	+		
<i>Psychotria andamanica</i>			+
<i>P. platyneura</i>		+	
<i>Tarenna weberaefolia</i>			+
MYRSINACEAE :			
<i>Embelia microcalyx</i>		+	
<i>Maesa andamanica</i>			+
OLEACEAE :			
<i>Jasminum multiflorum</i> var. <i>nicobaricum</i>	+		
APOCYNACEAE :			
<i>Alstonia kurzii</i>			+
<i>Chilocarpus denudatus</i> var. <i>nicobaricus</i>	+		
<i>Tabernaemontana crispa</i>			+
ASCLEPIADACEAE :			
<i>Genianthus horei</i>	+		
SCROPHULARIACEAE :			
<i>Cyrtandroemia nicobarica</i>	+		

Plant species	Endemic to		
	Gt. Nicobar Island	Nicobar Island	A & N Islands
GESNERIACEAE :			
<i>Cyrtandra burttii</i>	+		
<i>C. occidentalis</i>	+		
ACANTHACEAE :			
<i>Strobilanthes glandulosus</i>			+
MYRSINACEAE :			
<i>Knema andamanica</i> ssp. <i>andamanica</i>			+
LAURACEAE :			
<i>Litsea kurzii</i>		+	
<i>Nothophoebe nicobaricus</i>	+		
EUPHORBIACEAE :			
<i>Claoxylon rostratum</i>			+
<i>Cleistanthus balakrishnani</i>	+		
<i>Drypetes bhattacharyae</i>			+
<i>Glochidion calocarpum</i>			+
<i>Macaranga nicobarica</i>		+	
<i>Mallotus oblongifolius</i> var. <i>rubriflorus</i>			+
<i>Sphyranthera lutescens</i>			+
<i>Trigonostemon villosus</i> var. <i>nicobaricus</i>	+		
URTICACEAE :			
<i>Pellionia procrdifolia</i>		+	
<i>Elatostema novorae</i>		+	
MONOCOTYLEDONS :			
ORCHIDACEAE :			
<i>Aerides emericii</i>	+		
<i>Anoectochilus nicobaricus</i>	+		
<i>Eria bractescens</i> var. <i>kurzii</i>			+

Plant species	Endemic to		
	Gt. Nicobar Island	Nicobar Island	A & N Island
<i>Dendrobium shompenii</i>	+		
<i>Pomatocalpa andamanicum</i>			+
<i>Phalaenopsis speciosa</i> var. <i>speciosa</i>			+
<i>Trichoglottis quadricornuta</i>		+	
<i>Vanilla andamanica</i>			+
ZINGIBERACEAE :			
<i>Hornstedtia fenzlii</i>	+		
MARANTACEAE :			
<i>Phrynium paniculatum</i>	+		
DIOSCOREACEAE :			
<i>Dioscorea vexans</i>			+
AGAVACEAE :			
<i>Dracaena brachyphylla</i>	-		+
ARECACEAE :			
<i>Calamus andamanicus</i>			+
<i>C. dilaceratus</i>		+	
<i>C. pseudo-rivalis</i>			+
<i>C. unifarius</i>		+	
<i>C. nicobaricus</i>	+		
<i>Pinanga manii</i>			+
<i>Rhopaloblaste augustata</i>	+		
PANDANACEAE :			
<i>Pandanus leram</i> var. <i>andamanensium</i>			+
ARACEAE :			
<i>Aglaonema nicobaricum</i>	+		
<i>Homalomena griffithii</i> var. <i>ovata</i>	+		

Table 5
List of plant species common to A & N Islands and S.E. Asian countries but not found in India proper

Name of Species	Family	Distribution
PTERIDOPHYTES :		
<i>Lycopodium nummularifolium</i>	LYCOPODIACEAE	Gt. Nicobar Is.; Malay Peninsula to Pacific Island.
<i>Microsorium insigne</i>	POLYPODIACEAE	Gt. Nicobar Is.; Java & Malaysia.
<i>Syngamma alsimaefolia</i>	HEMIONITIDACEAE	Gt. Nicobar Island; Malaysia.
<i>Vittaria ensiformis</i>	VITTARIACEAE	A & N Is.; Thailand, Polynesia to Madagascar.
<i>Reediella humilis</i>	HYMENOPHYLLACEAE	A & N Is.; Indonesia, Malaysia, Philippines, Taiwan, Polynesia etc.
<i>Vandenboschia maxima</i>	HYMENOPHYLLACEAE	Gt. Nicobar; Japan to Pacific Islands.
<i>Crepidomanes bilabiatum</i>	HYMENOPHYLLOPSIDACEAE	Nicobar Is.; Thailand, Java, Western Malaysia.
<i>Lindsaea malayensis</i>	LINDSAEACEAE	Nicobar Is.; Malay Peninsula.
<i>L. parasitica</i>	LINDSAEACEAE	Nicobar Is.; Malay Peninsula, Thailand.
<i>L. tetragona</i>	LINDSAEACEAE	Nicobar Is.; Celebes, Solomon Islands, Fiji & Tahiti.
<i>Cyclosorus heterocarpus</i>	THELYPTERIDACEAE	A & N Is.; Java, Malay Peninsula, Philippines, New Guinea, China.

Name of Species	Family	Distribution
<i>Pronephrium cuspidatum</i>	THELYPTERIDACEAE	Gt. Nicobar; Malaysia, Solomon Islands, Taiwan, Rajuku Islands.
<i>Asplenium batuense</i>	ASPLENIACEAE	Great Nicobar; Western Malaysia.
<i>A. sublasperptifolium</i>	ASPLENIACEAE	Great Nicobar; Malaysia to S. China.
<i>A. tenerum</i>	ASPLENIACEAE	Great Nicobar; Malay Peninsula.
<i>Luerssenia kehdingiana</i>	ASPIDIACEAE	Great Nicobar; Sumatra.
<i>Bolbitis sinuata</i>	BOLBITIDIACEAE	Great Nicobar; Thailand, Malaysia, New Guinea.
<i>Lomagramma sumatrana</i>	BOLBITIDIACEAE	Great Nicobar; Malay Peninsula & Sumatra.
<i>Humata heterophylla</i>	DAVALLACEAE	Great Nicobar; Malaysia to Polynesia.
<i>H. pectinata</i>	DAVALLACEAE	Great Nicobar; Sumatra to Solomon Islands.
<i>Blechnum finlaysonianum</i>	BLECHNACEAE	A & N Islands; Malay Peninsula.
GYMNOSPERM :		
<i>Cycas rumphii</i>	CYCADACEAE	Andaman & Nicobar Islands; Myanmar.

Name of Species	Family	Distribution
ANGIOSPERMS :		
DICOTYLEDONS :		
<i>Naravelia laurifolia</i>	RANUNCULACEAE	Great Nicobar; Malay Peninsula.
<i>Anaxagorea javanica</i>	ANNONACEAE	Great Nicobar; Java, Borneo, Singapore.
<i>Goniothalamus malayanus</i>	ANNONACEAE	Great Nicobar; Malay Peninsula, Sumatra, Borneo & Sarawak.
<i>Polyalthia cauliflora</i> var. <i>desmantha</i>	ANNONACEAE	Great Nicobar; Thailand, Indonesia.
<i>P. lateriflora</i>	ANNONACEAE	A & N Islands; Myanmar.
<i>Pseuduvaria rugosa</i>	ANNONACEAE	Nicobar Is.; Malay Peninsula.
<i>Uvaria rufa</i>	ANNONACEAE	A & N Islands; Cambodia, Laos, Vietnam, Thailand, Malaysia, Philippines to New Guinea.
<i>Fibraurea tinctoria</i>	MENISPERMACEAE	A & N Islands; Myanmar, Thailand, Java, Malaysia, Sumatra.
<i>Pycnarrhena lucida</i>	MENISPERMACEAE	A & N Islands; Thailand, Cambodia, Malay Peninsula, Sumatra & Java.
<i>Tinomiscium petiolare</i>	MENISPERMACEAE	Great Nicobar Island; Malay Peninsula, Sumatra, Java.

Name of Species	Family	Distribution
<i>Casearia grewiaefolia</i> var. <i>gelonoides</i>	FLACOURTIACEAE	A & N Islands; Indonesia, Malaysia.
<i>Pangium edule</i>	FLACOURTIACEAE	Great Nicobar; Malaysia.
<i>Ryparosa javanica</i>	FLACOURTIACEAE	A & N Islands; Malay Peninsula, New Guinea.
<i>Xanthophyllum vitellinum</i>	XANTHOPHYLLACEAE	A & N Islands; Malaysia, Indonesia, Philippines.
<i>Calophyllum macrocarpum</i>	CLUSIACEAE	A & N Islands; South Thailand, Malay to Borneo.
<i>C. soulattri</i>	CLUSIACEAE	A & N Islands; South East Asia, Philippines, Vietnam to Australia.
<i>Garcinia nervosa</i>	CLUSIACEAE	A & N Islands; Malay Peninsula; Singapore.
<i>Saurauia bracteosa</i>	ACTINIDIACEAE	Great Nicobar; Java.
<i>Sterculia macrophylla</i>	STERCULIACEAE	Nicobar Is.; Myanmar, Malay Peninsula.
<i>S. parviflora</i>	STERCULIACEAE	A & N Islands; Myanmar, Bangladesh, Malaysia.
<i>S. rubiginosa</i>	STERCULIACEAE	A & N Islands; Myanmar & Malay Peninsula.
<i>Grewia acuminata</i>	TILIACEAE	Great Nicobar; Myanmar, Malay Peninsula.
<i>Triumfetta repens</i>	TILIACEAE	Great Nicobar; Thailand, Malaysia, Cambodia, Madagascar.
<i>Indorouchera griffithiana</i>	LINACEAE	Nicobar Islands; Malay Peninsula, Java.

Name of Species	Family	Distribution
<i>Glycosmis mauritiana</i> var. <i>insularis</i>	RUTACEAE	A & N Islands; Sri Lanka & Malay Peninsula.
<i>Canarium euphyllum</i>	BURSERACEAE	A & N Islands; S.E. Asia.
<i>Dacryodes rugosa</i>	BURSERACEAE	Nicobar Islands; Malay Peninsula, Java & Borneo.
<i>Aglaia edulis</i>	MELIACEAE	A & N Islands; Bangladesh, Java, Borneo & Fiji.
<i>A. sylvestris</i>	MELIACEAE	A & N Islands; Sumatra & Malaysia.
<i>Chisocheton grandiflorus</i>	MELIACEAE	A & N Islands; Myanmar & Malaysia.
<i>C. longistiptatus</i>	MELIACEAE	A & N Islands; Malay Peninsula.
<i>Dysoxylum arborescens</i>	MELIACEAE	A & N Islands; Borneo & Malay Peninsula.
<i>D. densiflorum</i>	MELIACEAE	Nicobar Islands; Java.
<i>Dichapetalum platyphyllum</i>	DICHAPETALACEAE	Nicobar Islands; Malay Peninsula, insular Philip- pines.
<i>D. timoriense</i>	DICHAPETALACEAE	Nicobar Is.; Malay Peninsula.
<i>Anacolosa frutescens</i>	OLACACEAE	A & N Islands; Myanmar, Malay Peninsula.
<i>Olax imbricata</i>	OLACACEAE	A & N Islands; Myanmar, Malay Peninsula.
<i>Iodes cirrhosa</i>	ICACINACEAE	Great Nicobar; Java, Philippines.

Name of Species	Family	Distribution
<i>Stemonurus secundiflorus</i>	ICACINACEAE	Great Nicobar; Java, Malay Peninsula.
<i>Smythea lanceata</i>	RHAMNACEAE	Nicobar Islands; Java, Philippines, New Guinea.
<i>Ziziphus horsfieldia</i>	RHAMNACEAE	Nicobar Islands; Java.
<i>Leea angulata</i>	LEEACEAE	Nicobar Islands; Java.
<i>Allophyllus dimorphus</i>	SAPINDACEAE	Nicobar Islands; Malay Peninsula, Philippines.
<i>Nephelium uncinatum</i>	SAPINDACEAE	Nicobar Islands; Borneo.
<i>Pometia pinnata</i> f. <i>glabra</i>	SAPINDACEAE	Nicobar Islands; Java, Philippines.
<i>Meliosma lanceolata</i>	SABIACEAE	Nicobar Islands; Sumatra, Borneo.
<i>Buchanania splendens</i>	ANACARDIACEAE	A & N Islands; Malay Peninsula, Indonesia.
<i>Mangifera camptosperma</i>	ANACARDIACEAE	A & N Islands; Malay Peninsula, China.
<i>Semecarpus prainii</i>	ANACARDIACEAE	A & N Islands; Malay Peninsula.
<i>Connarus planchonianus</i>	CONNARACEAE	Nicobar Islands; Malay Peninsula, Myanmar, Java.
<i>C. semidecandrus</i>	CONNARACEAE	A & N Islands; Myanmar.
<i>Derris elegans</i> var. <i>elegans</i>	FABACEAE	A & N Islands; Myanmar, Malaysia, Indonesia, Philippines.

Name of Species	Family	Distribution
<i>Dioclea hexandra</i>	FABACEAE	A & N Islands; Myanmar, Thailand, Malay Peninsula, Philippines.
<i>Bauhinia stipularis</i>	CAESALPINIACEAE	Great Nicobar; Sumatra.
<i>Intsia bijuga</i>	CAESALPINIACEAE	A & N Islands; Indonesia, Malaysia, Philippines.
<i>Archidendron clypearia</i>	MIMOSACEAE	Nicobar Islands; Malaysia & Thailand.
<i>A. ellipticum</i>	MIMOSACEAE	Nicobar Islands; Java, Malay Peninsula.
<i>Gynotroches axillaris</i>	RHIZOPHORACEAE	Nicobar Islands; Myanmar, Java, Malay Peninsula, Philippines.
<i>Rhizophora stylosa</i>	RHIZOPHORACEAE	Nicobar Islands; Malay Peninsula.
<i>Terminalia bialata</i>	COMBRETACEAE	A & N Islands; Myanmar, Malay Peninsula.
<i>Syzygium flosculiferum</i>	MYRTACEAE	Nicobar Islands; Malay Peninsula.
<i>S. samarangense</i>	MYRTACEAE	A & N Islands; Java, Malay Peninsula.
<i>Barringtonia pendula</i>	BARRINGTONIACEAE	Nicobar Islands; Malay Peninsula.
<i>B. reticulata</i>	BARRINGTONIACEAE	Nicobar Islands; Java & Malay Peninsula.
<i>Chydenanthus excelsus</i>	BARRINGTONIACEAE	A & N Islands; Myanmar.

Name of Species	Family	Distribution
<i>Astronia macrophylla</i>	MELASTOMATACEAE	Great Nicobar; Malay Peninsula, Java, Moluccus, Celebes.
<i>Melastoma affine</i>	MELASTOMATACEAE	Great Nicobar; Java, Malay Peninsula, Australia.
<i>Neodissochaeta celebica</i>	MELASTOMATACEAE	Great Nicobar; Borneo, Malay Peninsula, Celebes.
<i>Ochthocharis bornensis</i>	MELASTOMATACEAE	Great Nicobar; Borneo.
<i>Pternandra coerulea</i>	MELASTOMATACEAE	Great Nicobar; Malay Peninsula to Philippines.
<i>Memecylon caeruleum</i>	MEMECYLACEAE	A & N Islands; Malay Peninsula.
<i>M. garcinioides</i>	MEMECYLACEAE	Nicobar Islands; Thailand, Indonesia, Malaysia.
<i>Lagerstroemia ovalifolia</i>	LYTHRACEAE	Nicobar Islands; Java, Malay Peninsula.
<i>Crypteronia paniculata</i>	CRYPTERONIACEAE	A & N Islands; Myanmar, Java.
<i>Adenia penangiana</i> var. <i>penangiana</i>	PASSIFLORACEAE	Nicobar Islands; Malay Peninsula.
<i>Arthrophyllum diversifolium</i>	ARALIACEAE	A & N Islands; Java, Malaysia.
<i>Schefflera longifolia</i>	ARALIACEAE	Great Nicobar; Myanmar, Java.
<i>Mastixia trichotoma</i> var. <i>maingayi</i>	CORNACEAE	Great Nicobar; Java, Singapore.
<i>Alangium javanicum</i>	ALANGIACEAE	Nicobar Islands; Malay Peninsula, Java.

Name of Species	Family	Distribution
<i>Canthium glabrum</i>	RUBIACEAE	A & N Islands; Myanmar, Java, Malay Peninsula.
<i>Gardenia tubifera</i>	RUBIACEAE	Nicobar Islands; Sumatra, Java, Borneo.
<i>Greenea jackii</i>	RUBIACEAE	Great Nicobar; Myanmar, Malay Peninsula.
<i>Mussaenda villosa</i>	RUBIACEAE	Nicobar Islands; Java, Malay Peninsula.
<i>Petungia racemosa</i>	RUBIACEAE	Nicobar Islands; Malay Peninsula.
<i>Timonius jambosella</i>	RUBIACEAE	A & N Islands; Malaysia, Singapore.
<i>Uncaria lanosa</i> var. <i>ferrea</i> f. <i>ferrea</i>	RUBIACEAE	Nicobar Islands; Malay Peninsula, Borneo, Sumatra, Lesser Sunda Islands.
<i>Blumea junghuhniana</i>	ASTERACEAE	Nicobar Islands; Malay Peninsula; Indonesia, Philippines, New Guinea.
<i>Vernonia patula</i>	ASTERACEAE	Nicobar Islands; S.E. Asia, Philippines.
<i>Ardisia oxyphylla</i>	MYRSINACEAE	A & N Islands; Myanmar, Malay Peninsula.
<i>A. oxyphylla</i> var. <i>attenuata</i>	MYRSINACEAE	A & N Islands; Myanmar.
<i>Palaquium semarum</i>	SAPOTACEAE	Nicobar Islands; Malay Peninsula, Sumatra.
<i>P. sukoei</i>	SAPOTACEAE	Nicobar Islands; Myanmar, Malay Peninsula.
<i>Planchonella firma</i>	SAPOTACEAE	Nicobar Islands; Malay Peninsula.

Name of Species	Family	Distribution
<i>Diospyros cauliflora</i>	EBENACEAE	Great Nicobar; Malay Peninsula, S.E. Asian countries.
<i>Symplocos fasciculata</i>	SYMPLOCACEAE	Nicobar Islands; Java, Borneo, Malay Peninsula.
<i>S. odoratissima</i>	SYMPLOCACEAE	Nicobar Islands; Malay Peninsula.
<i>Alstonia macrophylla</i>	APOCYNACEAE	A & N Islands; Malaysia, Indonesia, Philippines.
<i>Kopsia arborea</i>	APOCYNACEAE	A & N Islands; Sumatra, Java.
<i>Rauvolfia sumatrana</i>	APOCYNACEAE	A & N Islands; Malay Peninsula, Sumatra.
<i>Fagraea auriculata</i>	LOGANIACEAE	Nicobar Islands; Myanmar, Indonesia, Malaysia, Singapore, China.
<i>F. racemosa</i>	LOGANIACEAE	A & N Islands; Myanmar, Indonesia, Borneo, Malay Peninsula.
<i>Tournefortia ovata</i>	BORAGINACEAE	A & N Islands; Myanmar, China.
<i>T. tetrandra</i>	BORAGINACEAE	Nicobar Islands; Malay Peninsula.
<i>Erycibe griffithii</i>	CONVOLVULACEAE	A & N Islands; Malay Peninsula, Java.
<i>Merremia peltata</i>	CONVOLVULACEAE	A & N Islands; Java, Malay Peninsula, Philippines, Australia.
<i>Operculina riedeliana</i>	CONVOLVULACEAE	A & N Islands; Malay Peninsula.

Name of Species	Family	Distribution
<i>Aeschynanthus volubilis</i>	GESNERIACEAE	Nicobar Islands; Sumatra.
<i>Rhynchoetechum parviflorum</i>	GESNERIACEAE	Nicobar Islands; Java, Malay Peninsula.
<i>Stauranthera grandiflora</i>	GESNERIACEAE	Nicobar Islands; Malay Peninsula.
<i>Radermachera pinnata</i> ssp. <i>acuminata</i>	BIGNONIACEAE	Nicobar Islands; Malay Peninsula, Java.
<i>Acanthus volubilis</i>	ACANTHACEAE	A & N Islands; Malay Peninsula.
<i>Mananthes-sumatrana</i>	ACANTHACEAE	Nicobar Islands; Java, Sumatra.
<i>Peristrophe acuminata</i>	ACANTHACEAE	Nicobar Is.; Myanmar, Malay Peninsula, Indonesia.
<i>Thunbergia laurifolia</i>	ACANTHACEAE	A & N Islands; Myanmar, Java, Malay Peninsula.
<i>Pseuderanthemum album</i>	ACANTHACEAE	Nicobar Islands; Myanmar, Malay Peninsula.
<i>Teijsmanniodendron peralata</i>	VERBENACEAE	Nicobar Islands; Myanmar, Malay Peninsula.
<i>Pisonia umbellifera</i>	NYCTAGINACEAE	A & N Islands; Malay Peninsula.
<i>Aristolochia jackii</i>	ARISTOLOCHIACEAE	Nicobar Islands; Malaysia.
<i>Thottea tomentosa</i>	ARISTOLOCHIACEAE	A & N Islands; Java, Malay Peninsula.
<i>Piper pedicellosum</i>	PIPERACEAE	A & N Islands; Java, Malay Peninsula.
<i>Horsfieldia irya</i>	MYRISTICACEAE	A & N Islands; Myanmar, Java, Sumatra, Sri Lanka.

Name of Species	Family	Distribution
<i>Myristica elliptica</i>	MYRISTICACEAE	Nicobar Islands; Sumatra, Malay Peninsula.
<i>Kibara coriacea</i>	MONIMIACEAE	Nicobar Islands; Java, Sumatra, Celebes.
<i>Actinodaphne procera</i>	LAURACEAE	Nicobar Islands; Java.
<i>Dehaasia candolleana</i>	LAURACEAE	Nicobar Islands; Myanmar.
<i>Litsea pustulata</i>	LAURACEAE	Great Nicobar; Malay Peninsula.
<i>Nothopoebe panduriformis</i> var. <i>paucinervia</i>	LAURACEAE	Nicobar Islands; Malaysia.
<i>Hernandia nymphaeifolia</i>	HERNANDIACEAE	A & N Islands; Malay Archipelago, N. Australia, Madagascar, E. Africa.
<i>Helicia serrata</i>	PROTEACEAE	Nicobar Islands; Java.
<i>Phaleria macrocarpa</i>	THYMELAEACEAE	Nicobar Islands; Malaysia, Java.
<i>Balanophora abbreviata</i>	BALANOPHORACEAE	Great Nicobar; Java.
<i>Alchornea rugosa</i>	EUPHORBIACEAE	A & N Islands; Myanmar, South China, Malaysia to New Guinea, N. Australia.
<i>Antidesma tetrandrum</i>	EUPHORBIACEAE	Nicobar Islands; Sumatra, Java.
<i>A. tomentosum</i>	EUPHORBIACEAE	Nicobar Islands; Malay Peninsula, Java, Sumatra, Borneo.

Name of Species	Family	Distribution
<i>Baccaurea sumatrana</i>	EUPHORBIACEAE	Nicobar Islands; Malaya Peninsula, Sumatra Borneo.
<i>Blumeodendron kurzii</i>	EUPHORBIACEAE	A & N Islands; Myanmar, Thailand, Malay Peninsula, New Guinea.
<i>B. takbrai</i>	EUPHORBIACEAE	Great Nicobar; Malay Peninsula, Java, Sumatra, New Guinea.
<i>Breynia racemosa</i>	EUPHORBIACEAE	Nicobar Islands; Thailand, Malay Peninsula, Sumatra, Java, Borneo.
<i>Croton argyratus</i>	EUPHORBIACEAE	A & N Islands; S.E. Asia, Malaysia to Moluccas, N. Australia.
<i>Drypetes microphylla</i>	EUPHORBIACEAE	Nicobar Islands; Malaya, Sumatra & Borneo.
<i>D. sumatrana</i>	EUPHORBIACEAE	Nicobar Islands; Myanmar, Thailand, Sumatra.
<i>Glochidion surnatranum</i>	EUPHORBIACEAE	Nicobar Islands; Myanmar, Thailand, Malay Peninsula.
<i>Macaranga triloba</i>	EUPHORBIACEAE	Nicobar Islands; Thailand, Malay Peninsula.
<i>Mallotus oblongifolius</i>	EUPHORBIACEAE	A & N Islands; Malaysia to New Guinea, N. Australia.

Name of Species	Family	Distribution
<i>M. peltatus</i>	EUPHORBIACEAE	A & N Islands; Myanmar, Thailand, Sumatra, Java, Malaysia.
<i>M. penangensis</i>	EUPHORBIACEAE	Nicobar Islands; Malay Peninsula, Borneo, Philippines.
<i>Phyllanthus amarus</i>	EUPHORBIACEAE	A & N Islands; Myanmar.
<i>P. gomphocarpus</i>	EUPHORBIACEAE	Nicobar Islands; Malay Peninsula, Sumatra.
<i>Cypholopus moluccanus</i>	URTICACEAE	Nicobar Islands; Malay Peninsula, Java.
<i>Pipturus argenteus</i>	URTICACEAE	A & N Islands; Java, Malay Peninsula, Philippines, Australia and Polynesia.
<i>Ficus hispida</i>	MORACEAE	A & N Islands; Myanmar, Malay Peninsula.
<i>F. pendens</i>	MORACEAE	Nicobar Islands; Malay Peninsula.
<i>Gironniera subaequalis</i>	ULMACEAE	A & N Islands; Myanmar, Java, Malay Peninsula, Thailand.
MONOCOTYLEDONS :		
<i>Burmannia championii</i>	BURMANNIACEAE	Nicobar Islands; Sri Lanka, Indonesia, Malay Peninsula to New Guinea, Japan, China.

Name of Species	Family	Distribution
<i>Appendicula reflexa</i>	ORCHIDACEAE	Great Nicobar Islands; Thailand, Sumatra to New Guinea.
<i>Bulbophyllum macranthum</i>	ORCHIDACEAE	Great Nicobar; Thailand, Sumatra, New Guinea.
<i>Ceratostylis subulata</i>	ORCHIDACEAE	Nicobar Islands; Myanmar, Java, Malay Peninsula, Sumatra.
<i>Cleisostoma uraiense</i>	ORCHIDACEAE	Great Nicobar; Philippines, Taiwan, Formosa.
<i>Dendrobium pensile</i>	ORCHIDACEAE	Nicobar Islands; Malay Peninsula, Thailand.
<i>D. crumenatum</i>	ORCHIDACEAE	A & N Islands; Sri Lanka, Myanmar, China, Thailand, Java, Malay Peninsula.
<i>Flickingera fimbriata</i>	ORCHIDACEAE	A & N Islands; Thailand, Malaysia, Borneo, Java, Celebes, Philippines.
<i>Hetaeria obliqua</i>	ORCHIDACEAE	Nicobar Islands; Malaysia, Indonesia.
<i>H. oblongifolia</i>	ORCHIDACEAE	Nicobar Islands; Myanmar, Thailand, Malay Peninsula, Java, Philippines.
<i>Nervilia punctata</i>	ORCHIDACEAE	Nicobar Islands; Thailand, Malay Peninsula, Borneo, Sumatra.
<i>Phalaenopsis speciosa</i> var. <i>tetraspis</i>	ORCHIDACEAE	A & N Islands; Java.

Name of Species	Family	Distribution
<i>Plocoglottis javanica</i>	ORCHIDACEAE	Great Nicobar; Myanmar, Thailand, Java, Malay Peninsula.
<i>Podochilus microphyllus</i>	ORCHIDACEAE	Great Nicobar; Myanmar, Thailand, Malay Peninsula.
<i>Pteroceras barkeleyi</i>	ORCHIDACEAE	A & N Islands; Malay Peninsula.
<i>Spathoglottis plicata</i>	ORCHIDACEAE	Nicobar Islands; Thailand, Malay Peninsula, Java, Sumatra, Philippines.
<i>Thrixspermum hystrix</i>	ORCHIDACEAE	A & N Islands; Myanmar, Thailand, Borneo, Java, Malaysia.
<i>Trichoglottis cirrhifera</i>	ORCHIDACEAE	Great Nicobar; Thailand, Laos, Java, Malay Peninsula.
<i>Vrydagzynea albida</i>	ORCHIDACEAE	Great Nicobar; Myanmar, Thailand, Malaysia, Indonesia, Philippines.
<i>Actoplanes canniformis</i>	MARANTACEAE	A & N Islands; Myanmar, Malay Peninsula, Java.
<i>Korthalsia laciniosa</i>	ARECACEAE	A & N Islands; Malay Peninsula.
<i>Freycinetia insignis</i>	PANDANACEAE	A & N Islands; Java.
<i>Aglaonema simplex</i>	ARACEAE	Nicobar Islands; Myanmar, Java.

Name of Species	Family	Distribution
<i>Homalomena nutans</i>	ARACEAE	Nicobar Islands; Myanmar.
<i>Pothos macrocephalus</i>	ARACEAE	Nicobar Islands; Java, Sumatra.
<i>Carex cryptostachys</i>	CYPERACEAE	A & N Islands; Malay Peninsula.
<i>Cyperus javanicus</i>	CYPERACEAE	A & N Islands; Java, Malaysia, Japan, Australia.
<i>Mapania cuspidata</i> var. <i>petiolata</i>	CYPERACEAE	Nicobar Islands; Thailand, Java, Malay Peninsula.
<i>M. cuspidata</i> var. <i>angustifolia</i>	CYPERACEAE	Great Nicobar; Malay Peninsula, Celebes, Philippines, New Guinea.
<i>Scirpodendron ghaeri</i>	CYPERACEAE	Nicobar Islands; Sri Lanka, Java, Malaysia, Thailand, Celebes, New Guinea.
<i>Scleria scrobiculata</i>	CYPERACEAE	A & N Islands; Malaysia, Thailand.
<i>Coelorachis glandulosa</i>	POACEAE	Nicobar Islands; Malay Peninsula, Indonesia, Java.
<i>Dinochloa scandens</i>	POACEAE	A & N Islands; Myanmar.
<i>Thuarea involuta</i>	POACEAE	Nicobar Islands; Malay Peninsula, Java, Thailand & Sumatra.

RARE AND THREATENED PLANTS

A comprehensive list of rare and threatened plants of Great Nicobar with remarks on their status is given below. These plants have been categorised under two groups :

Rare and endangered endemic taxa of Great Nicobar Island :

It includes 48 taxa, out of which 14 have never been collected after type collections (TC) and remaining have either rare distribution or recollected from type localities (TL) see Table 6 :

Table 6
Rare and Endangered Endemic Taxa

S.N.	Plant Species	Remarks
1.	<i>Cyathea nicobarica</i>	TC
2.	<i>Clematis smilacifolia</i> var. <i>andamanica</i>	TC
3.	<i>Artabotrys nicobarianus</i>	TC
4.	<i>Pseuduvaria prainii</i>	TL
5.	<i>Uvaria nicobarica</i>	TC
6.	<i>Cyclea pendulina</i>	Rare
7.	<i>Chisocheton nicobarianus</i>	Rare
8.	<i>Nicobariodendron sleumeri</i>	TC
9.	<i>Tetrastigma andamanica</i>	Rare
10.	<i>Leea grandifolia</i>	Rare
11.	<i>Mangifera nicobarica</i>	TC
12.	<i>Connarus nicobaricus</i>	TC
13.	<i>Terminalia procera</i>	Rare
14.	<i>Otanthera nicobarensis</i>	Rare
15.	<i>Coptophyllum nicobaricum</i>	TC
16.	<i>Ixora cuneifolia</i> var. <i>macrocarpa</i>	TC
17.	<i>I. tenuifolia</i>	TC
18.	<i>Ophiorrhiza nicobarica</i>	TL
19.	<i>Psychotria platyneura</i>	Rare

S.N.	Plant Species	Remarks
20.	<i>P. tylophora</i>	Rare
21.	<i>Tarenna weberaefolia</i>	Rare
22.	<i>Embelia microcalyx</i>	Rare
23.	<i>Chilocarpus denudatus</i> var. <i>nicobaricus</i>	TC
24.	<i>Genianthus horei</i>	Rare
25.	<i>Cyrtandroemia nicobarica</i>	Rare
26.	<i>Cyrtandra burttii</i>	TC
27.	<i>C. occidentalis</i>	TL
28.	<i>Strobilanthes glandulosus</i>	Rare
29.	<i>Nothophoebe nicobaricus</i>	TC
30.	<i>Drypetes bhattacharyae</i>	Rare
31.	<i>Macaranga nicobarica</i>	Rare
32.	<i>Mallotus oblongifolius</i> var. <i>rubriflorus</i>	Rare
33.	<i>Trigonostemon villosus</i> var. <i>nicobaricus</i>	TC
34.	<i>Elatostema novarae</i>	TC
35.	<i>Pellionia procrdifolia</i>	Rare
36.	<i>Anoectochilus nicobaricus</i>	TL
37.	<i>Aerides emericii</i>	Rare
38.	<i>Dendrobium shompenii</i>	Rare
39.	<i>Phalaenopsis speciosa</i>	Rare
40.	<i>Pomatocalpa andamanicum</i>	Rare
41.	<i>Trichoglottis quadricornuta</i>	Rare
42.	<i>Vanilla andamanica</i>	Rare
43.	<i>Phrynium paniculatum</i>	TL
44.	<i>Calamus dilaceratus</i>	TC
45.	<i>C. nicobaricus</i>	TC
46.	<i>C. unifarius</i>	Rare
47.	<i>Rhopaloblaste angustata</i>	TC
48.	<i>Aglaonema nicobaricum</i>	TC

Rare and endangered non endemic taxa :

This group includes 85 taxa, most of them are rare or endangered only as for as Indian territory is concerned (see Table 7) :

Table 7
Rare and Endangered Non Endemic Taxa

PTERIDOPHYTES :

<i>Lycopodium nummularifolium</i>	LYCOPODIACEAE
<i>Microsorium insigne</i>	POLYPODIACEAE
<i>Syngamma alsimaefolia</i>	HEMIONITIDACEAE
<i>Vandenboschia maxima</i>	HYMENOPHYLLACEAE
<i>Pronephrium cuspidatum</i>	THELYPTERIDACEAE
<i>Asplenium batuense</i>	ASPLENIACEAE
<i>A. sublaspertiifolium</i>	ASPLENIACEAE
<i>Luerssenia kehdingiana</i>	ASPIDIACEAE
<i>Bolbitis sinuata</i>	BOLBITIDIACEAE
<i>Lomagramma sumatrana</i>	BOLBITIDIACEAE

GYMNOSPERMS :

<i>Cycas rumphii</i>	CYCADACEAE
----------------------	------------

ANGIOSPERMS :

<i>Naravelia laurifolia</i>	RANUNCULACEAE
<i>Anaxagorea javanica</i>	ANNONACEAE
<i>Goniothalamus malayanus</i>	ANNONACEAE
<i>Polyalthea lateriflora</i>	ANNONACEAE
<i>Pseuduvaria rugosa</i>	ANNONACEAE
<i>Tinomiscium petiolare</i>	MENISPERMACEAE
<i>Casearia grewiaefolia</i> var. <i>gelonoides</i>	FLACOURTIACEAE
<i>Pangium edule</i>	FLACOURTIACEAE
<i>Saurauia bracteosa</i>	ACTINIDIACEAE
<i>Sterculia macrophylla</i>	STERCULIACEAE
<i>Grewia aciminata</i>	TILIACEAE