

## A REVIEW ON THE FLORISTIC STUDIES IN THE ANDAMAN AND NICOBAR ISLANDS UP TO 1970

K. THOTHATHRI

*Botanical Survey of India, Howrah*

### INTRODUCTION

The Andaman and Nicobar are two groups of islands lying in the bay of Bengal, the former of 204 large and small islands, and the latter of about 22 smaller islands. Due to their inaccessibility of approach, even to-day many parts of the islands remain unexplored though in the past they have attracted the attention of plant explorers and other naturalists. They possess a rich plant wealth with a flora very much akin to Burma and Malesian islands. The well-developed mangrove forests, beach forests, the dense, moist, evergreen forests of the low and high elevations and the moist, deciduous forests characterise the main vegetation types. The flora of the Andamans is more burmese in nature while in the Nicobars it is more malesian in character. Other distinct and noteworthy features are the presence of fairly well represented endemic elements, epiphytic orchids and ferns and the absence of aquatics. This paper is a chronological review of the floristic history of the islands as a prelude to an assessment of its present status.

The status of floristic studies in the islands can be studied in three phases. In

the first phase (1791-1863) sporadic visits and occasional collections were made by botanists, plant explorers etc. The second phase (1866-1903) consisted of collections and contributions to the vegetation and flora of selected islands. The third phase (1921-1970) was marked by detailed surveys and solitary contributions to the flora, vegetation and phytogeography, of these islands.

### FIRST PHASE

The earliest recorded botanical collections from the Andaman islands dates back to 1791 when Col. Robert Kyd of the East India Company's garden at Sibpur, Calcutta, visited the islands. On his return he introduced a few plants in the garden which were later described by W. Roxburgh in his "Flora Indica" (1820-32). Of these may be mentioned *Pterocarpus dalbergioides* Roxb. and *Dipterocarpus incanus* Roxb., the two principal timber yielding species of the Andaman islands. In 1834 Dr. Helfer, a Russian geologist visited these islands to explore their mineral wealth. During the course of his work he also made valuable plant collections. Unfortunately, he was killed by the tribals in North Andaman and

as a result many of his collections in the Andaman got mixed up with those he had made at Tenasserim. His Andaman collections were, therefore, labelled as 'Tenasserim and Andamans' causing great confusion, with many of his Tenasserim collections being ascribed to the Andamans. His collections were distributed in important herbaria including the Calcutta herbarium.

Two expeditions during their cruise touched the islands for sporadic collections. Mr. Jelineck of Dr. von Hochstetter's Austrian expedition (1845-47) 'Novara' collected a few plants from the Car Nicobar island. The famous 'Galathea' expedition (Danish expedition) by Commodore Steen Bille (1847-49) made a few collections from the Great Nicobar Island and an enumeration of its collections together with an account of the vegetation was published in Danish in 1849 and subsequently translated into English by N. Wallich (1850). In 1863 Rev. Parish from Moulmein, Burma, botanised the islands and his collections are present both in the Calcutta and Kew herbaria.

#### SECOND PHASE

Sulphiz Kurz, Curator of the then Royal Botanic Garden, Sibpur, Calcutta, visited the islands systematically between 1866-76 and collected plants from the South Andaman and middle group of Nicobars (Katchall, Kamorta and Nancoury Islands). All his collections are present in the Calcutta herbarium. In 1866 he was asked by the Government to proceed to the Andaman islands to investigate and evaluate the forest wealth of the islands and collect plants for writing a flora. Accordingly, during his short visit, he made extensive collections in the South Andaman. His report on 'The vegetation of the Andaman Islands' published in 1870, contained 660 phanerogams and 50 crypto-

gams with a note on the timber yielding plants. In addition to the above, many of his Andaman plants were treated in his 'Forest flora of British Burma' (1877).

The first major contribution to the flora of Nicobar Islands was again by Kurz (1876) when he published 'A sketch on the vegetation of the Nicobar Islands' which contained a vivid account of the evergreen forests of Kamorta and Katchall islands and a floristic list of 625 species of vascular plants. A notable feature of the vegetation is the presence of 'Grass Heaths' (Grasslands) situated on hilly plateaux of the Nicobars. These are for the larger part made up of grasses such as *Imperata cylindrica* (L.) Beauv., *Saccharum spontaneum* L., *Eragrostis zeylanica* Nees et Mey., *Heteropogon contortus* L., *Chrysopogon aciculatus* (Retz.) Trin., etc. together with patches of *Lycopodium cernuum* L. and *Dicranopteris linearis*, (Burm.) Underwood, growing amongst them. Kurz included a small collection of Dr. A. O. Hume, made in Nicobar in 1870. Besides the vegetation account, Kurz (1875) described 37 new taxa from the Nicobar Islands.

H. E. Mann, Extra Assistant Conservator of Forests, Andaman Islands, made periodic collections during his tenure of office and these were examined by George King, Superintendent of the Royal Botanic Garden, Calcutta, who described and named a number of new taxa after Mann (1889-96). J. D. Hooker dealt with a number of Andamanese plants in his Flora of British India (1872-97) which included many, new to science.

The floristic studies initiated by Kurz was continued by David Prain, Curator of the herbarium, Royal Botanic Garden, Sibpur, Calcutta, who conducted a series of botanical explorations from 1890 onwards. All his collections from Andamans are well maintained in the Calcutta herbarium. In a series

of articles he described the vegetation of the Cocos Islands (1891 c), Little Andaman and Car Nicobar Islands (1891 a) and, Narcondam and Barren Islands (1893), the last two being volcanic in origin. The non-indigenous species of the Andaman flora wherein he had traced their history, origin and present status, was Prain's (1891 b) major contribution. According to him such elements had come into the flora primarily due to human agency directly or indirectly, there being little chance for the exotics to cross over the sea. According to him majority of such exotics were ornamentals, garden and avenue plants with a few cereal, fruit and vegetable yielding species.

G. King in the company of Prain, visited the Andamans and North Nicobars and made valuable collections which are now present in the Calcutta herbarium. In the monumental work 'Materials for the Flora of Malay Peninsula' compiled by King (1890) and Gamble, many of the Andamanese plants were described including a number of new taxa. R. L. Heining and C. G. Rogers of the Indian Forest Service during their stay in the Andamans made valuable collections which were later communicated by Gamble (1903) as 'Preliminary List of Plants of the Andaman Islands'. In 1914 M. C. Bonnington collected a number of plants from the beach forest of Great Nicobar Island but the whereabouts of his collections are unknown.

### THIRD PHASE

C. E. Parkinson, Extra Assistant Conservator of Forests, Andamans, undertook the major task of working out the forest flora of the Andaman Islands which he completed and published in 1923. Even to-day this is the only authentic flora for the majority of Andaman plants in general and the forest

species in particular. Detailed vegetation account together with floristic composition are dealt with in the introduction. It is followed by systematic treatment of 650 species, each provided with nomenclature, short description and simple keys for genera/species. Notes on distribution, economic uses, quality and utility of timber and its economic potentiality are the other notable features in the flora. The collections of Parkinson are present both in the Central National Herbarium, Howrah and Forest Research Institute Herbarium, Dehra Dun.

After Parkinson there were no appreciable work on the flora of the islands for about three decades except short accounts on the forest types by Chengapa (1944), Bhargava (1958) etc. More recently, Sahni of the Forest Research Institute, Dehra Dun, has made two notable contributions. He visited the Great Nicobar Island in 1952 along with forest officials to assess the timber wealth of that island. During his short stay he collected about 200 species which were later published (1953). His other contribution (1958) on the mangroves of the Andaman and Nicobar Islands is a critical assessment from their utilitarian point. A short account on the fore-shore vegetation of the Car Nicobar Island was made by K. S. Srinivasan (1960).

In pursuance of the exploration programmes of the Botanical Survey of India, the author has undertaken botanical explorations, during five major tours (1958-59, 1964, 1966, 1971 and 1974) covering almost all the islands of the Andaman and Nicobar groups. One of the tours (1966) was a Joint Scientific Expedition to the Great Nicobar Island, organised to explore and assess the mineral, biological and timber wealth of this remote island. Seven scientific departments (Geological Survey of India, Botanical Survey of

India, Zoological Survey of India, Anthropological Survey of India, Andaman Forest Department, Indian Meteorological Department and All India Institute of Hygiene and Public Health) took part in this joint expedition which lasted for 100 days.

These explorations have resulted in a collection of 7000 plant specimens for the herbarium, besides many for the museum and live plants for the garden. During these tours he made critical studies on the vegetation, flora, phytogeography and ethno/economic botany of the bay islands. His findings have been communicated in a series of 22 publications (Thothathri, 1960-78) which includes many taxa new to science and records new to the Indian flora. In these papers he described the vegetation and flora of the Andaman Islands (1960), Andaman and Nicobars (1964), Car Nicobar and Nancoury Islands (1960), Great Nicobar Island (1973) and Baratang and Little Andaman Islands (1975). Based on the above studies, it is estimated that the flora of the islands as a whole might contain 1500 species of vascular plants. The Andaman flora is more akin to burmese while that of Nicobars is more malesian in character. Even among the Andaman and Nicobar group there is a well marked difference in floristic composition. The principal forest trees of the Andaman group (*Pterocarpus dalbergioides* Roxb. and different species of *Dipterocarpus*) do not find a place in the Nicobars and similarly the tree fern [*Cyathea albo-setacea* (Bedd.) Copel.] characteristic of the Nicobar group is absent in the former. The third interesting feature is the presence of endemic elements, (150-200 species) constituting 10% of the flora and this, considering the comparatively much smaller area of the whole group of islands is strikingly significant. Aquatics are poorly represented in the flora.

Based on the above studies, the author

made certain specific proposals to the Government regarding the cultivation of rubber in the Nicobars and coffee in the Andamans and these have been taken up by the Andaman Administration.

#### FUTURE STRATEGIES

Realising the importance of the flora and with a view to gear up the developmental activities, Botanical Survey of India started a new Circle at Port Blair in 1971. The Circle has taken up earnestly the exploration programmes in a planned manner and is now entrusted with the working of a detailed flora of the bay islands.

#### REFERENCES

- ANONYMOUS. The Andaman and Nicobar Islands. *Local Gazetteer*, 1908.
- BHARGAVA, O. P. Tropical evergreen virgin forests of Andaman Islands. *Indian Forester* 84 : 20-29 1958.
- BHATTEE, S. S. Logging in the Andamans. *Ibid.* 84 : 192-212. 1958.
- CHENGAPA, B. S. Andaman forests and their generation-I. *Ibid.* 70 : 297-304. 1944.
- GAMBLE, J. S. A preliminary list of the plants of the Andaman Islands. Port Blair. 1903.
- HOOKE, J. D. Flora of the British India. 1-7. 1872-97. London.
- KING, G. AND J. S. GAMBLE. Materials for a flora of the Malay Peninsula. *J. Asiat. Soc. Beng.* 5 vols. 1889-1936.
- KURZ, S. Report on the vegetation of the Andaman Islands. Calcutta. 1870.
- Description of new plants from the Nicobar Islands. *J. Bot. Lond.* 4 (New Ser.) : 321-323. 1875.
- A sketch of the vegetation of the Nicobar Islands. *J. Asiat. Soc. Beng.* 45 : 105-164. 1876.
- Forest Flora of the British Burma. 1-2. Calcutta. 1876.
- PARKINSON, C. E. A Forest Flora of the Andaman Islands. Simla. 1923.

- PRAIN, D. On a botanical visit to Little Andamans and the Nicobars. *Proc. Asiat. Soc. Beng.* 156-175. 1891 a.
- The Non-indigenous species of the Andaman flora. *J. Asiat. Soc. Beng.* 59 : 235-261. 1891 b.
- The vegetation of Coco group. *Ibid.* 60 : 283-406. 1891 c.
- On the flora of Narcondam and Barren Islands. *Ibid.* 62 : 39-86. 1893.
- SAHNI, K. C. Botanical exploration in the Great Nicobar. *Indian Forester* 79 : 3-7. 1953.
- Mangrove forests in the Andaman and Nicobar Islands. *Ibid.* 84 : 554-562. 1958.
- SRINIVASAN, K. S. On the fore-shore vegetation of Malacca coast of Car Nicobar Island. *Bull. bot. Surv. India* 2 : 15-25. 1960.
- TEMPLE, R. C. The Andaman and Nicobar Islands. *Imperial Gazetteer of India*. 1908.
- THOTHATHRI, K. Studies on the flora of the Andaman Islands. *Bull. bot. Surv. India* 2 : 357-373. 1960.
- Botanical exploration in the Car Nicobar and Nancoury Islands. *Ibid.* 2 : 341-346. 1960.
- New Records of plants from the Andaman and Nicobar Islands. *J. Bombay nat. Hist. Soc.* 58 : 309-316. 1961.
- Contributions to the flora of the Andaman and Nicobar Islands. *Bull. bot. Surv. India* 4 : 281-296. 1962.
- A new variety of *Jasminum multiflorum* (Burm.f.) Andr. from the Nicobar Islands. *Ibid.* 5 : 99-100. 1963.
- A note on *Chydenanthus excelus* (DC.) Miers. from the Nicobar Islands. *Curr. Sci.* 33 : 26-27. 1964.
- A new species of *Hypoestes* from the Andaman Islands. *Reinwardtia* 7 : 1-3. 1965.
- The 'Tonyoge' plant of Little Andaman. *Indian Forester* 92 : 530-532. 1966.
- *Pubistylus* Thoth.—A rare and interesting new genus of Rubiaceae from the Andaman Islands. *Reinwardtia* 7 : 283-286. 1966.
- Interesting and useful plants of the Andaman and Nicobar Islands. *Bull. Indian Mus.* 9 : 26-28. 1974.
- Botanical exploration in Baratang and Little Andaman Island. *Indian Forester* 101 : 176-181. 1975.
- AND DEBIKA DAS. A new Annonaceae from the Andaman Islands. *J. Bombay nat. Hist. Soc.* 64 : 430-431. 1968.
- AND N. P. BALAKRISHNAN. *Phanera nicobarica* (Caesalpiniaceae)—A new and interesting species from the Great Nicobar Island. *Bull. bot. Surv. India* 17 : 201-203. 1975.
- AND S. P. BANERJEE. *Lasianthera secundiflora* Miq. (Icacinaceae)—A new record for India from Great Nicobar Island. *Indian Forester* 103 : 708-709. 1977.
- ET AL. *Ophioglossum pendulum* Linn. (Ophioglossaceae)—A rare and interesting plant from the Great Nicobar Island. *Bull. bot. Surv. India* 11 : 347-349. 1969.
- ET AL. New records of *Selaginella* Spr. and *Lycopodium* L. from Great Nicobar Island. *Sci. & Cult.* 36 : 330-331. 1970.
- ET AL. On a collection of *Psilotum* Sw. from the Great Nicobar Island. *Bull. bot. Surv. India* 12 : 280-281. 1970.
- ET AL. *Mapania cuspidata* (Miq.) Vitt. var. *angustifolia* (Vitt.) Vitt.—An interesting Cyperaceae from Great Nicobar Island. *Indian Forester* 98 : 708-709. 1972.
- ET AL. New records of Malesian plants from Great Nicobar Island. *Bull. bot. Surv. India* 15 : 163-166. 1973.
- ET AL. Botanical results of the Joint Scientific Expedition to the Great Nicobar Island. *Ibid.* 15 : 235-265. 1973.
- ET AL. *Merremia peltata* (Linn.) Merr. (Convolvulaceae)—A new record to Indian Flora from Great Nicobar Island. *Curr. Sci.* 44 : 95. 1975.
- ET AL. New additions to the Pteridophytic flora of the Great Nicobar Island. *J. Bombay nat. Hist. Soc.* 74 : 249-254. 1978.