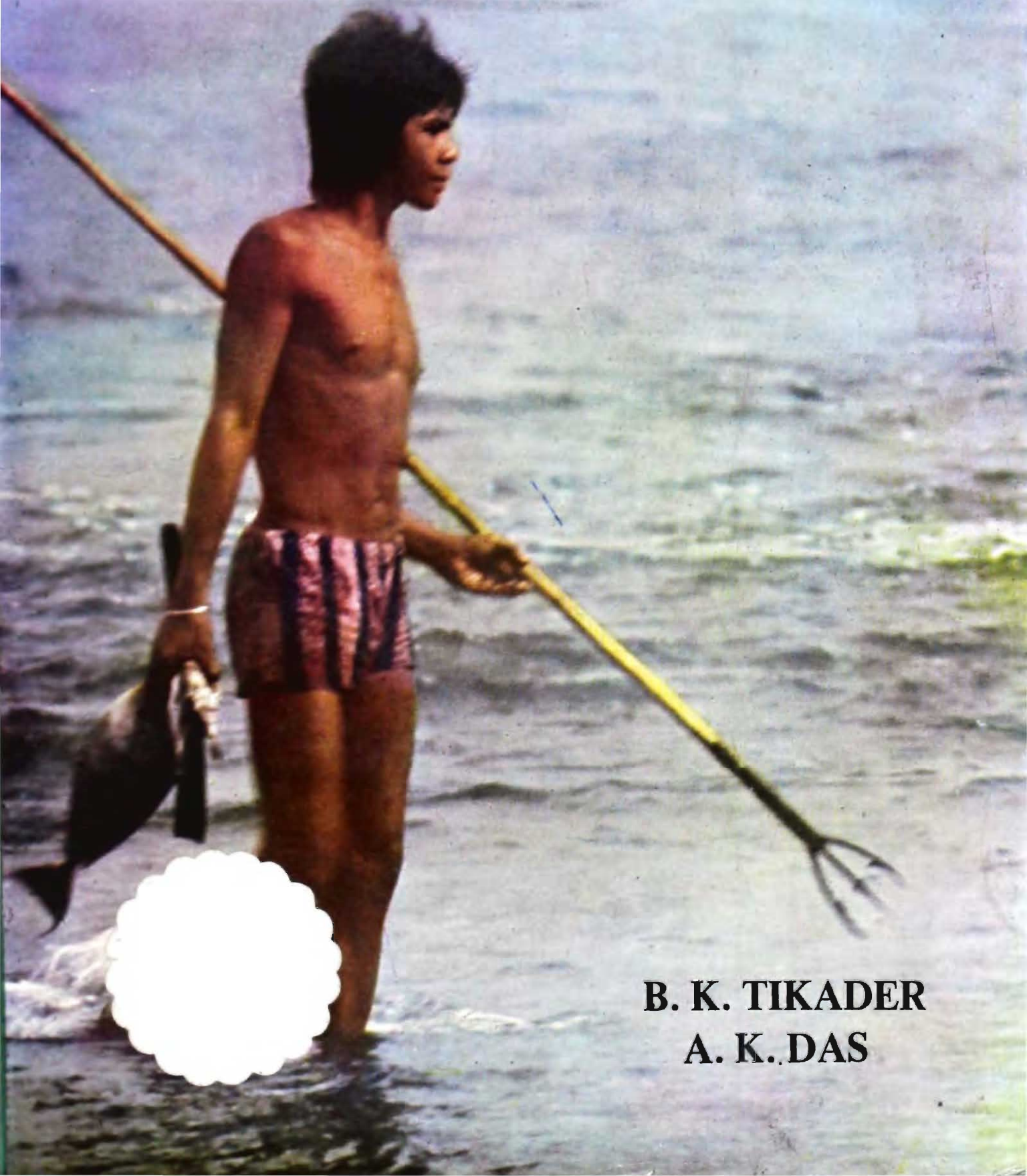


GLIMPSES OF ANIMAL LIFE OF ANDAMAN & NICOBAR ISLANDS



**B. K. TIKADER
A. K. DAS**

The Handbook on Glimpses of Animal Life of Andaman and Nicobar Islands is an attempt to provide up-to-date information on animal life and topography of these islands, which is also unique and comparable to that of the famous Galapagos Islands in the Pacific Ocean. Perhaps, the virgin natural beauty of these places makes many a naturalist and tourist very much enthusiastic to have a glimpse of animal life of these islands. Whatever information is available in this regard clearly indicates the diversity, richness and uniqueness of the faunal wealth of these islands.

The book covers information in some detail on mammals, birds, reptiles and amphibians. Invertebrates, namely, snails and slugs, insects, spiders, scorpions, centipedes, millipedes are discussed in brief. The sea-shore animals which are very attractive particularly to the tourists are dealt with in a general way. Further, some general information regarding these islands is also appended to this book for the convenience of tourists.

This book will help in furthering interest in these fascinating virgin islands amongst naturalists and tourists from India as well as abroad.

For anyone interested in these unique and virgin insular fauna and other information, this is an enthralling book.

Front Cover : A happy young Nicobari boy, returning home after fishing from open sea.

Back Cover : Typical Littoral forest mixed with mangrove.

Cover theme and design by Dr. B. K. Tikader

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B. K. TIKADER

A. K. DAS

Zoological Survey of India, Calcutta



Edited by the Director

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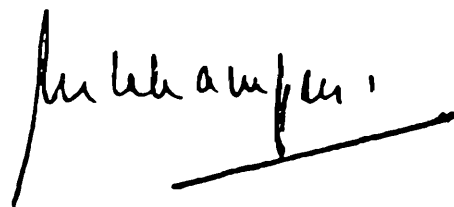
FOREWORD

With their unparalleled natural beauty, unique aborigines and rich diversified flora and fauna, the Andaman and Nicobar Islands attract tourists and naturalists alike.

These Islands are often referred to as "Zoologists' Paradise" because of their unique faunal wealth that has been the subject matter of active investigation since the middle of the 19th Century. But very little has been explored so far and information in this regard is almost lacking. It is in this context that Dr. B. K. Tikader, Director, Zoological Survey of India, who is also the author of the books "Threatened Animals of India" and "Birds of Andaman and Nicobar Islands" has written this book covering all the major faunal groups available in these Islands. Dr. A. K. Das, the co-author of this book, is also a noted Zoologist and had been the Officer-in-Charge of the Andaman and Nicobar Regional Station of the Zoological Survey of India for six years.

The Zoological Survey of India is doing a commendable job in the exploration and study of the faunal wealth of these Islands. For taking up such activities, a full-fledged Regional Station was established at Port Blair in the year 1977. Dr. Tikader, Director of this Institution, is a dedicated worker and has been taking lot of interest in the development of the faunal wealth of the Islands. His love and devotion for the fauna of these Islands have compelled him to write a large number of research papers and the book on the Andaman birds has been appreciated by the bird-watchers of these Islands.

The present book "Glimpses of Animal Life of Andaman & Nicobar Islands" gives a detailed faunal account of these Islands, which was a long felt need. It is, therefore, heartening to note that authors like Dr. Tikader and Dr. A. K. Das who have been associated with these Islands for a long time have dealt with the subject in a lucid manner. I am sure that this publication will be welcomed by all concerned and will be of great interest and use for the tourists, the general public and the students of Zoology.



(M L KAMPANI)
Lieutenant Governor
A & N Islands

Port Blair

EDITOR'S PREFACE

The Andaman and Nicobar Islands, comprising 324 large and small islands and covering an area of 8,300 sq.km. are unique in their variety of fauna and flora. The isolation of these islands from the mainland has been responsible for the high degree of endemism and as many as 32 species and subspecies of mammals, 95 species and subspecies of birds, 23 species and subspecies of reptiles are endemic in these islands. With regard to the flora and fauna, a large number of species are common between these islands and the Indian mainland besides Burma & Malaysia. The book "**Glimpses of Animal Life of Andaman & Nicobar Islands**" gives whatever information is available in this regard. It clearly indicates the diversity, richness and uniqueness of the faunal wealth of these islands. In this context, the authors have attempted to bring out this publication covering an overall faunal life of these islands.

The book covers information on mammals, birds, reptiles and amphibians. As for fishes, although the marine fish fauna of these islands is extremely rich and varied, only the commercially important marine fishes and also some freshwater, estuarine and stream fishes are discussed. The sea-shore animals which are very attractive particularly to the tourists are dealt with in general. A separate book "**Sea-shore Animals of Andaman and Nicobar Islands**" is under publication where all information in this regard has been furnished. The tribal people of these islands and their social life are also discussed in brief. Further, some general information regarding these islands is also appended to this book for the convenience of tourists. Moreover, the colour photographs of many animals as well as important monuments like the Cellular Jail and different types of forests are given.

Dr. Asok Kumar Das, co-author of this book has been engaged for many years in studying fauna of these islands. During the course of his career in the Zoological Survey of India, he was posted at Port Blair and availed the opportunity of surveying fauna of these islands.

It is my privilege that I am able to write the preface of this popular book by virtue of my position as Editor and to this particular one of which I am the senior author. It is hoped that this illustrated book will serve as an important and informative document on these fascinating islands, mainly for tourists, students and naturalists in India and abroad.

Zoological Survey of India
Calcutta

B. K. TIKADER
Director

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We express our deep sense of gratitude to Dr. T. N. Khoshoo, Secretary, Department of Environment, Government of India, for his keen interest in this book. It is only due to his inspiration and support it has been possible for us to bring out this publication.

It is our great privilege to thank Shri M. L. Kampani, Lt. Governor, Andaman and Nicobar Islands, for valuable help and encouragement and for writing the foreword of this book, and Shri R. D. Kapoor, Chief Secretary, Andaman and Nicobar Administration, for help and various facilities during the preparation of this book.

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We must thank Dr. M. P. Nayar, Director and Dr. N. P. Balakrishnan, Deputy Director, Botanical Survey of India, Dr. H. M. Kapur and Dr. A. K. Datta, Geological Survey of India and Dr. A. K. Danda, Director, Anthropological Survey of India for offering valuable suggestions and going through the manuscript on physiography and Tribal chapters.

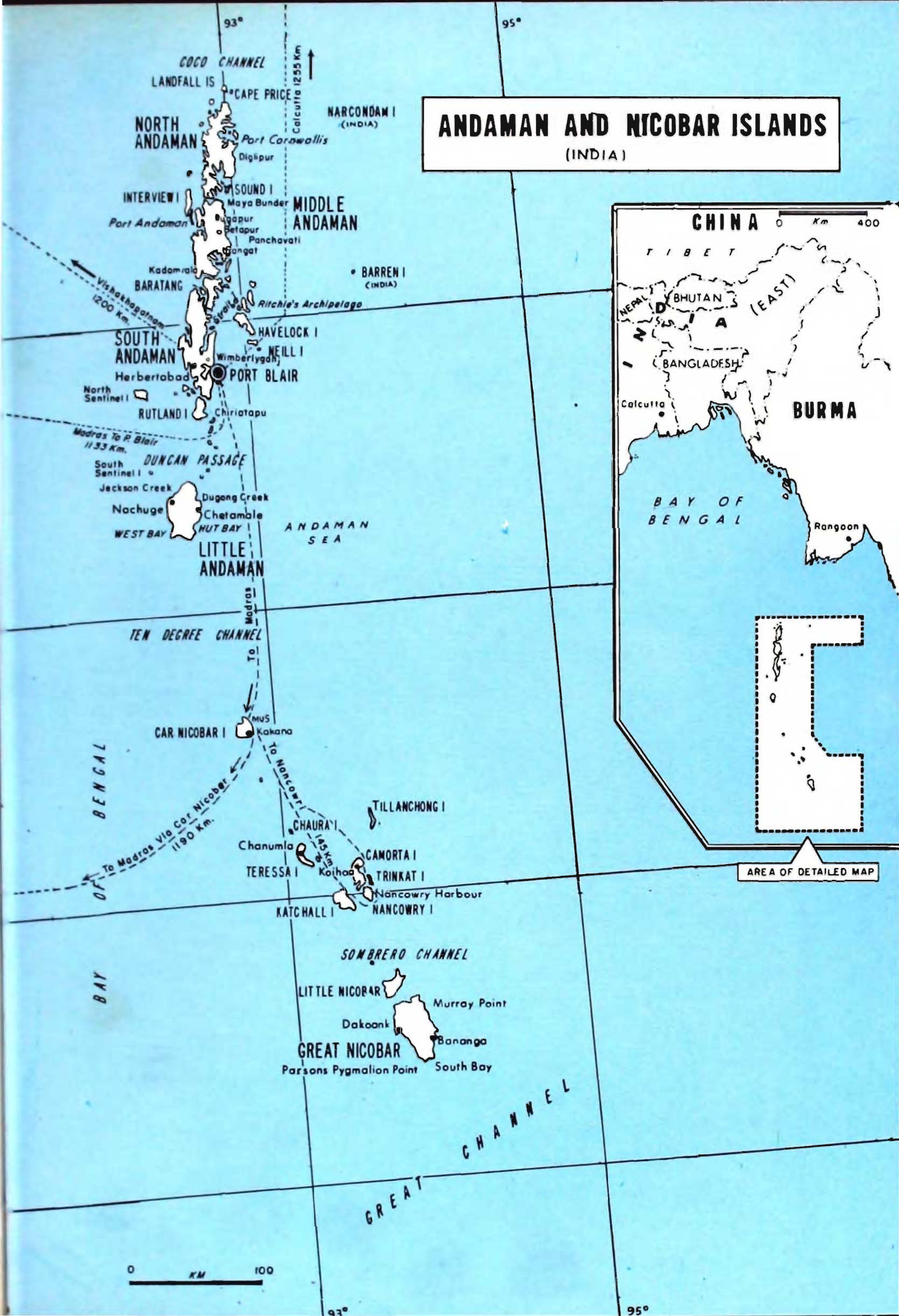
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Last but not the least we are thankful to Dr. O. B. Chhotani, Z.S.I., Calcutta, for kindly going through the manuscript and offering valuable suggestions for improvement and to Dr. R. K. Kacker and Shri Shyamal Tikader, who readily helped us in various ways during the preparation of this book.

ANDAMAN AND NICOBAR ISLANDS (INDIA)





Littoral forests mixed with mangrove —

INTRODUCTION

The Andaman and the Nicobar groups of Islands sparkle like a chain of beads on the inky, blue water of the Bay of Bengal and the Andaman Sea with their golden beaches, lush green vegetation, tropical forests, unpolluted air, fascinating tribal life and cosmopolitan population. These Islands were veiled in mystery for many a years and treated as forbidden land, the *Kalapani* (*kala* means black and *pani* means water), perhaps so named to inculcate an impression of fear and dread in the prisoners. As a matter of fact, this name has nothing to do with the colour of the sea and the bays where these beautiful islands are located.

Because of complete isolation from the Asiatic mainland, the then British Government considered the Andamans very safe place to deport hardened murderers and notorious decoits from India and Burma. Ultimately, very ill-famous Cellular Jail was constructed during the years 1898-1908 and the Colonial Government then started deporting Indian revolutionaries and freedom fighters whom they termed 'Seditionists', 'Terrorists' and 'Dangerous Types'. For these reasons Andaman Islands, the 'Kalapani', became watch-word of terror and the place of 'no return' to the common people at that time.

The situation is completely changed at present. These islands are no more considered as a 'Black Water Prison'. They are rather a green paradise attracting a large number of tourists from the mainland and abroad every year.

The topography of these islands is also unique and comparable to that of the famous Galapagos Islands in the Pacific Ocean. Perhaps, the virgin natural beauty of this place makes many a naturalist and tourist very much enthusiastic to have a glimpse of animal life of these islands. Whatever information is available in this regard clearly indicates the diversity, richness and uniqueness of the faunal wealth of these islands. Unfortunately, such information is very much scattered over a large number of periodicals, many of which are not easily accessible. In this context, we have attempted to bring out this publication covering an overall faunal life of the islands in a popular way. The publication is based on earlier findings of many noted zoologists and naturalists supplemented by those of our own, made during a number of surveys in these remote islands.

The book covers information in some detail on mammals, birds, reptiles and amphibians. As for fishes, although the marine fish fauna of these islands is extremely rich and varied, only the commercially important marine fishes and also some freshwater, estuarine and stream fishes are discussed. Invertebrates, namely, snails and slugs, insects, spiders, scorpions, centipedes, millipedes, earthworms and leeches are discussed in brief. The sea-shore animals which are very attractive particularly to the tourists are dealt with in a general way. Further, some general information regarding these islands is also appended to this book for the convenience of tourists.

We earnestly hope that this book will be of considerable interest to naturalists and tourists. Also, it will inculcate a sense of conservation of the diverse and unique faunal wealth amongst the general public and provide base-line data for further faunistic studies of these oceanic islands.

PHYSIOGRAPHY

The far southeastern region of the Bay of Bengal presents some tropical evergreen sprinkles of lands in the form of small and large islands rising from the deep blue waters of the sea interrupting the view of the infinite Indian Ocean. The archipelago comprises several hundred islands known as the Andaman and Nicobar Islands extending over 800 km. These islands were once a part of the Asian mainland but got detached some 100 million years ago during the Upper Mesozoic Period due to geological upheaval. The existing groups of islands constitute the physiographic continuation of the mountainous ranges of Naga and Lushai Hills and Arakan Yoma of Burma through Cape Negrais to the Andaman and Nicobar Islands and southeast of Sumatra (Achin Head). The chains of these islands are in fact the camel backs of the submerged mountain ranges projecting above the sea level running north to south between $6^{\circ}45'N$ and $13^{\circ}30'N$ latitudes and $90^{\circ}20'E$ and $93^{\circ}56'E$ longitudes. As per 1981 census the total landmass of these islands is 8249 sq km approximately.

The Andaman and Nicobar Archipelago can be broadly divided into two groups of islands, namely, the Andamans and the Nicobars. These two groups are separated by the Ten-degree Channel which is about 150 km wide and 400 fathoms deep.

The Andaman group consists of 324 islands of which only 20 (as per 1981 census) are inhabited. The main part of the group is collectively known as the Great Andamans comprising five closely adjoining islands, namely, North Andaman, Middle Andaman, South Andaman, Baratang and Rutland islands. All these are separated by narrow channels. The Great Andaman group covers a land area of 6408 sq km. The southernmost island of the Andaman group is the Little Andaman which is separated by a strait called Duncan Passage. This island is 48 km long and 27 km wide and its land area is about 960 sq km.

The Nicobar group comprises 24 islands of which 13 are inhabited (as per 1981 census) and others are of less significance. The total landmass of this group is 1841 sq km. The distance between the northernmost point of Car Nicobar and Pygmalion Point (the southernmost tip of Great Nicobar) is 310 km. The Pygmalion Point is in fact the southernmost boundary of India and is about 144 km from Achin Head of Sumatra. Of all the islands of Nicobar group, Great Nicobar is the largest having an area of nearly 1045.1 sq km with a length of 55 km between Murray Point in the north and Pygmalion Point in the south. Other islands of the group worth mentioning are Car Nicobar, Choura, Tillanchong, Teressa, Bompoka, Camorta,

Trinket, Nancowry, Katchal, Pulomilo, Kondul and Little Nicobar. Most of these islands are fertile and support evergreen vegetations, especially the clusters of coconut palms that bear green fans waving high above the slim bare trunks against the blue sky. Car Nicobar is the Headquarter of the Nicobar group of islands. It is a coral island and has a shape more or less that of Australia with a land area of 126.9 sq km.

GEOLOGICAL HISTORY

The Andaman and Nicobar groups of Islands belong to a geosynclinal basin. The sediments of this region have gradually changed their characters, according to tectonic movements, to which they have been subjected to from time to time, as such the rocks are highly folded.

The six distinct geological formations, consisting of various groups of rocks, form these islands. These formations include "Older Sedimentaries", Ophiolite Suite (with basic and ultrabasic intrusives), Mithakhari Group, Andaman Flysch, Archipelago 'Series' and the Rultand Shell-Limestone. They represent a period of sedimentation, from Cretaceous (about 100 million years) to Sub-Recent (less than 10,000 years). The surface deposits of gravel beds and raised soil covers, on the other hand, are of very late origin, i.e., Recent to Sub-Recent (i.e., less than 10,000 years).

In general, it is believed, that the mountain ridges of the island were formed at the expense of a narrow but deep oceanic furrow during Late Mesozoic Period (100 million years).

The Older Sediments of Mesozoic formed the basement for younger deposits. The history of later deposition is that of an inconsistent basin i.e. associated with movement, volcanism and deposition, side by side with igneous intrusions. Over the Older Sediments, at the deeper part of the sea bottoms, there was rich accumulation of siliceous tests of radiolarians, possibly drifted from nearby places. This was followed by intricate subsidence and deposition of sediments of late Cretaceous to Oligocene (consisting of group of rocks of Mithakhari Group, Andaman Flysch, Archipelago 'Series'). During Oligocene, the islands faced a tremendous earth movement resulting in mountain ridges, although well within the sea. Some of the ridges were suited for the growth of corals and also had the rising tendency for developing the reef islands. As such, formation of Rut Islands (West Coral Reef, Middle Coral Reef, Chaura Coral Reef, Sambero Channel Coral Reef, Car Nicobar Coral Reef) in this region is attributed to these and also to the deposition of limestone.

The present configuration was, however, achieved by these islands only about 26 million years ago. Two of the islands, Narcondam and Barren Islands are of volcanic origin. The former is an apparently extinct volcano, while the latter is still active.

SOIL

The soil cover is more or less thin varying between two and five metres in the hilly tracts. The alluvial soil is found on top of the ridges and diluvial soil covers the blocks of the ridges and valleys. Thick alluvial soil (30-50 metres) is formed along river courses. Coastal flats are admixture of sand, silty clay and diluvial material together with fine fragments of coral lime. The soil, in general, is mild to moderately acidic with appreciably high humus on top.

CLIMATE

These islands are tropical, that is, warm, moist and equable. The proximity of the sea and the abundant rainfall prevent extremes of heat. The mountainous parts of the southern islands get about 300 cm of rain annually whereas the islands of north get lesser rainfall. Winter is practically unknown, the period from December to February is comparatively cool due to the effect of northeast monsoon. The warm weather extends from March to April when there is the least precipitation. In May southwest monsoon breaks over the area and continues till October end.

The variation of temperature over the islands is small (23° - 31° C). The range of the mean temperature in the year is about two degrees. Due to high humidity (over 80 per cent) the weather remains oppressive. Except for three dry months (December-February) sky remains overcast with clouds. Thunderstorms occur most frequently in the hot season. During the southwest monsoon season winds are moderate but with its retreat typhoons affect the area. Some of these develop into full fledged cyclonic storms, lashing the coasts accompanied by heavy rain and strong gusty winds dreading the lives of the sea-farer

FLORISTIC

Andaman and Nicobar Islands come under the zone of tropical rain forests of the world. The tropical hot and humid climate with abundant rains has resulted in the formation of very luxuriant and rich vegetation in these islands. According to Champion and Seth

(A Revised Survey of the Forest Types of India, 1968) the forests of these islands can be classified under the following main types

- 1 Giant evergreen forests
2. Andaman tropical evergreen forests
3. Southern hili top tropical evergreen forests
4. Andaman semi-evergreen forests
5. Andaman moist deciduous forests
6. Littoral forests
- 7 Mangrove forests

In addition to these seven main types, there are also a few more types, namely, cane brakes, bamboo brakes, etc., which are not very important from the point of view of the area covered. Except mangrove forests all other types can not be distinctly demarcated. Rather, they imperceptibly merge into each other to form an intimate mixture.

The Giant evergreen forests are the most luxuriant type of multi-storeyed forests on these islands and form the climatic climax vegetation. The top canopy is formed by the giant trees which are almost entirely evergreen. They occur near the banks of the larger streams where soils are deep and alluvial. The main species found in this type are Gurjan (*Dipterocarpus* spp.), Poon (*Calophyllum soulattri*), Taungpienne (*Artocarpus chaplasi*), Lambapatti (*Sideroxylon longepetiolatum*), Lalchini (*Amoora wallichii*), Papita (*Sterculia campanulata*), etc.

Though very similar in composition, the Andaman tropical evergreen forests are not as luxuriant as the Giant evergreen forests particularly in the size of the top storey, density and height. Moreover, top storey is very irregular and deciduous species are more frequent in this type. This type of forests occurs throughout the islands as caps to the hills, with the slopes having moist deciduous forests. Gurjan, Taungpeinne, Kala Lakuch (*Artocarpus gomeziana*), Poon, Red Bombway (*Planchonia andamanica*), Thingam (*Hopea odorata*), Bakota (*Endospermum chinense*), Lambapatti, Letpyaw (*Xanthophyllum andamanicum*), Jaiphal (*Myristica andamanica*), Khataphal (*Baccaurea sapida*), etc., are the main species occurring in this type.

The Southern hill top tropical evergreen forests occur on hill tops and sometimes on steep slopes lower down on poorer soils and are usually exposed to high winds. The vegetation is comparatively stunted in growth. The important species occurring in this type are *Dipterocarpus costatus*, *Mesua ferrea*, *Canarium manni*, *Hopea helferi*, *Cratoxylon formosum*, *Euphorbia trigona*.

The Andaman semi-evergreen forests are also luxuriant type of forests which include giant trees of both deciduous and evergreen species. Climbers are usually plenty. This type of forests is mainly confined to the main valleys on well drained immature alluvial soil. Gurjan, Letkok (*Pterygota alata*), White Chuglam (*Terminalia bialata*), White Bombway (*T. procera*), Bonmeza (*Albizzia chinensis*), Koko (*A. lebbek*), Poon, Didu (*Artocarpus lakoocha*), Taungpienne, Padauk (*Pterocarpus dalbergiodes*), Pyinma (*Lagerstroemia hypoleuca*) are the common species occurring in this type.

The Andaman moist deciduous forests are multi-storeyed, top canopy of which is formed by the giant trees of about 40 metre in height, 3 metre in girth and heavily buttressed. They are confined to hilly ground usually not extending beyond 100 metre. These forests are the most important source of a number of valuable commercial timbers like, Padauk, Marble wood (*Diospyros marmorata*), White Bombway, Chooi (*Sageraea elliptica*), Koko, White Dhup (*Canarium euphyllum*), etc.

The Littoral forests are found on alluvial high level soil along the sea coast beyond the reach of the sea. The most common species found in this type are Bullet wood (*Mimusops littoralis*), Thitpok (*Tetrameles nudiflora*), Badam (*Terminalia catappa*), Poon, Karanja (*Pongamia glabra*), etc.

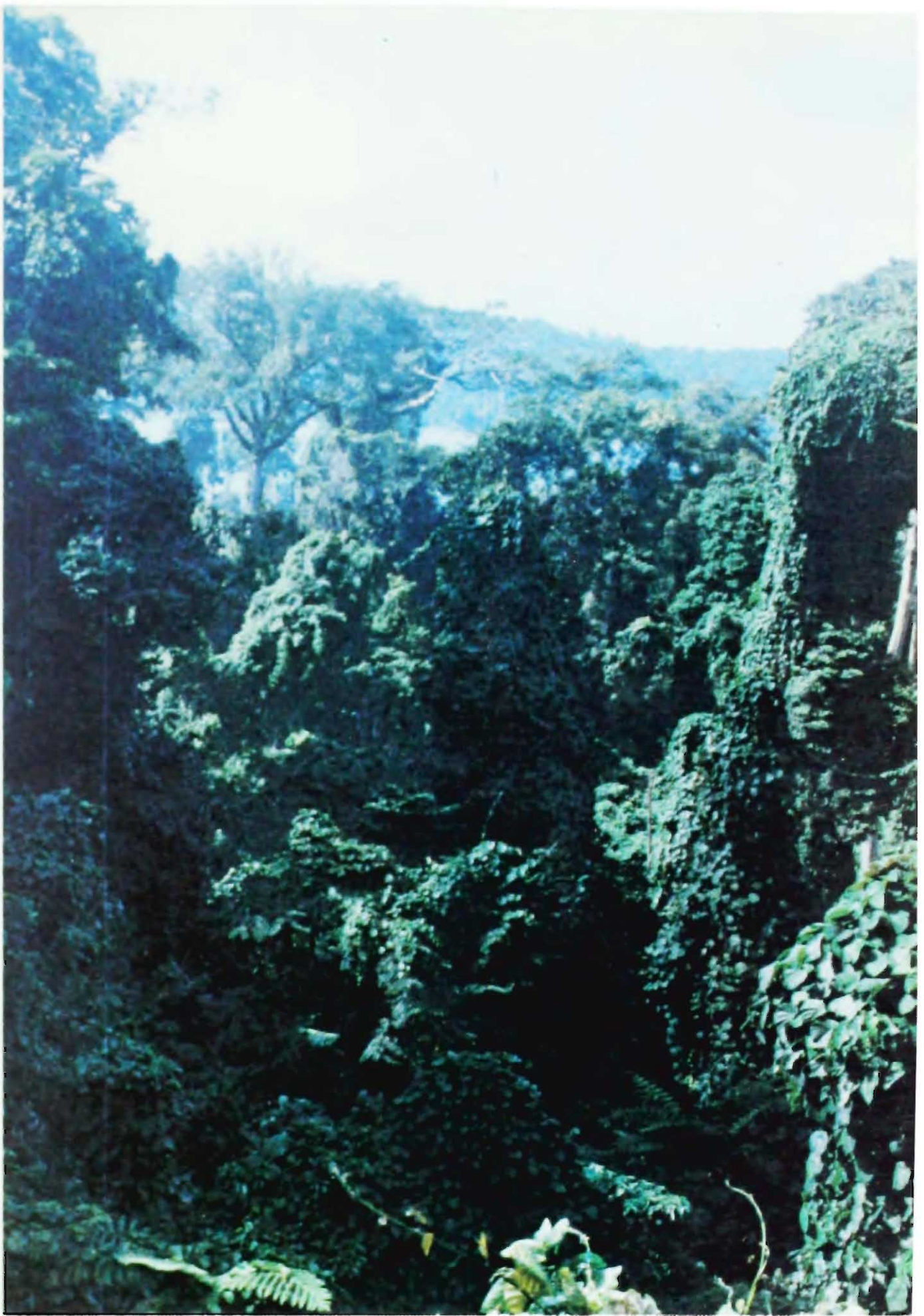
Mangrove forests of these islands occupy shores, mouth of creeks and inland channels covering an area of about 100,000 hectares (Blasco 1977). The species that occupy the most outer seaward fringe are *Rhizophora mucronata*, *R. apiculata* and *R. stylosa* forming thick clusters. In the brackish water swamps that sometimes extend for pretty good distances from sea mouth and are connected by creeks penetrating deeply into the interior, prominent species are *Bruguiera parviflora* and *B. gymnorrhiza*. Other mangrove species, e.g., *Sonneratia* spp. extend some distance inland into the tidal forests, whereas *Avicennia officinalis*, *Heritiera littoralis* and *Scyphiphora hydrophyllacea* grow towards the land side of the mangrove swamps.

ZOOGEOGRAPHY

Andaman and Nicobar Islands are the summits of a submarine mountain range having a continuation with the Arakan Yomas of Burma in the north and the island fastoons of Sumatra in the south. Due to geographical proximity and past geological connections of the Andaman Islands with Burma (Indo-Chinese Subregion) and Nicobar Islands with Sumatra (Indo-Malayan Subregion) it is expected that the Indo-Chinese faunal elements will be prevalent in the Andamans while Malayan elements will be more abundant in the Nicobars. This view is clearly expressed by Smith (1930) when he said, "Andaman contains an impoverished Burmese fauna, that of Nicobar approximates to the Sumatran type" But factual data which are presently available particularly on reptiles and mammals do not support this generalisation about the distribution of these island fauna. Almost all the exotic species of lizards available in these islands are found in the Indo-Malayan Subregion. Some of them occur in both Andaman and Nicobar Islands as well as Indo-China and Malaysia. That is why Stoliczka (1870) remarked "several species of lizards and snakes are common to both, and the whole fauna generally resembles the Malayan, gradually passing into Burmese fauna" So far as the snakes are concerned excepting three species, namely, *Ptyas mucosus*, *Maja naja kaouthia* and *Ophiophagus hannah* (which are found in the Indo-Chinese Subregion) almost all the other exotic species of these islands belong both to Indo-Chinese and Indo-Malayan Subregions.

Among the exotic species of mammals of these islands the maximum faunal affinity is found with India (Chaturvedi, 1980) Avifaunal affinities also seem to be closer to India than to Burma and Malay (Abdulali, 1964). Again, some bats which are found to occur in the Andamans (but not in the Nicobars) are common in both the Indo-Chinese and Malayan Subregions. *Cynopterus sphinx*, *Eonycteris spelaea*, *Taphozous melanopogon* and *Megaderma spasma* are such examples. There are also bats, namely, *Taphozous saccolaimus crassus*, *Pipistrellus coromandra* and *Hipposideros fulvus fulvus* which are found in the Nicobar Islands and India (but not in the Andamans). Again, one species of bat, *Tylonycteris pachypus fulvida*, is available in the Andamans, mainland India and Java but not in the Nicobars.

From the faunistic point of view, most interesting is the absence of large mammals and the presence of a considerable number of endemics among the inland vertebrates as shown in Table I. This Table supports the general view that there is always a greater tendency for speciation among the island animals.



Tropical evergreen forests

Littoral forests uprooted by soil erosion





Special mangrove, *Nypa*, on the bank of Galathea river



Southern hilltop tropical evergreen forests

Semi-evergreen forests



Table I. Number of species/subspecies of mammals, birds and reptiles of Andaman and Nicobar islands and number of endemic species and subspecies present there.

<i>Name of the group</i>	<i>Total no. of species/ subspecies</i>	<i>No. of endemic species/subspecies</i>
MAMMALS		
Macaques	2*	1
Tree shrews	2	2
Terrestrial shrews	4	4
Jungle cat	1**	—
Palm civet	1	1
Pigs	2	2
Deer***	2	—
Bats	26	11
Rats	14	11
Squirrels	1	—
BIRDS	242	95
REPTILES		
Snakes	40	13
Lizards	32	10

*including Pigtailed Macaque which was described from Fort Blair based on a single pet individual probably brought from Burma.

**occurrence doubtful.

***introduced from the Indian mainland during the early part of the Twentieth Century.

FAUNA

Animals of the Andaman and Nicobar Islands can broadly be divided into two categories—the inland animals inhabiting land and fresh water within the insular limits and the marine ones occupying entire marine zone covering these islands. Among these, the inland animals are more interesting particularly to the zoologists because islands are treated as 'evolutionary laboratories' since Darwin-Wallace era. As a matter of fact, long period of isolation has resulted in the formation of diversified biotopes which have helped to evolve and sustain differences in the animal population in different islands. That is why a considerable number of endemic species and subspecies are found in these islands as discussed earlier

MAMMALS

These islands are poor in species of mammals with the exception of bats and rats. Fiftyeight species and subspecies of mammals (including 3 marine ones) (Appendix IX A) are known from these islands out of which bats and rats constitute 26 species and 14 species respectively. The occurrence of bats and rats in these islands can conveniently be explained by the fact that the bats are endowed with the power of flight to negotiate the expanse of the sea between the islands and their adjacent countries whereas the rats can easily migrate to these islands through rafts, canoes, ships, etc. Nevertheless, these mammals, under changed ecological set up of the islands as well as due to long geographical isolation have achieved the status of endemic species and subspecies as would be expected in insular forms. This is evident from the fact that out of 26 species and subspecies of bats 6 are endemic in the Andamans and 6 in the Nicobars. Among the 14 species and subspecies of rats of these islands 5 are endemic in Andaman Islands, 4 in the Nicobars, 2 in both these islands and remaining 3 are cosmopolitan in distribution.

Other mammals of this region include the Crab-eating Macaque of the Nicobars, the Wild Pig of Andaman and Nicobar Islands and the Palm Civet of the Andamans. Of course, there occurs the Chital as well as the Barking Deer which were introduced in these islands through human agency during the first quarter of this century. In addition to these, there are feral goats in Barren Island and feral cats which are recently reported from South Andaman Islands (Nath and Chaturvedi, 1975). There are also some Indian Elephants which were initially brought to the Andamans by the contractors for lumbering during the earlier part of this century. They are now roaming wild in the forests of Interview Island and some parts of North Andaman. There is a record of the Pigtailed Macaque, *Macaca nemestrina leonina* (Bartlett, 1869) and the Jungle

Cat, *Felis chaus* (Blyth in Mouat, 1863) from the Andamans. The former was perhaps brought as a pet and does not occur at present while the latter constitutes a doubtful record.

Tree shrews of these islands are represented by one species (2 subspecies) and terrestrial shrews by 4 species, all of which are endemic.

The Northern Palm Squirrel, *Funambulus pennanti* is an example of recent introduction. At present this animal is commonly found in Port Blair

The Dolphins and the Dugongs are the marine mammals of Andaman and Nicobar waters. There are also frequent reports on the occurrence of large whales blowing 'water-spouts' off Nancowry, Little and Middle Andamans, identity of which are yet to be established. During 1976 and 1977 two large False Killer Whale, *Pseudorca crassidens* were caught in gill nets off Port Blair (Sivaprakasam, 1980).

Absence of practically all the characteristic Malayan species of mammals from these islands such as ungulates, carnivores and flying lemurs are very noteworthy. Since ecological set up of both the Andamans and the Nicobars is very much favourable to support a rich and varied fauna, this paucity of mammalian species may, therefore, be explained on presumption (see Miller, 1902) that these islands were isolated at such time when mammals now characteristic of Malaya Region did not exist there. These islands being surrounded by great depth of water prevented subsequent migration of these mammals to this region. Miller (1902) has rightly pointed out that the presence of mammals now available in these islands other than bats and rats can not be explained otherwise than through the agency of man. That is why big mammals like monkeys and pigs are found to occur only in such islands which are inhabited by man. This also applies in the case of the Palm Civet and the Tree-shrew.

Mammals of these islands are discussed below group-wise under separate subheads.

Crabeating Macaque

The Nicobar Crabeating Macaque, *Macaca fascicularis umbrosa* is the only macaque that occurs at present in these islands. This macaque is found in three islands of the Nicobar group, namely, Great Nicobar, Little Nicobar and Katchal. It is not available in Andaman Islands. Incidentally it is the only Crabeating Macaque found within the Indian limits. It is also the only anthropoid primate that occurs in these islands. Mention, however, may be made here

that its allied subspecies are available in Burma, Thailand, Vietnam, Malaysia, Indonesia and the Philippines.

This macaque was recorded by Blyth as early as 1846 although it has long been known as a inhabitant of Nicobar Islands. Without assigning any reason Blanford (see Miller, 1902) suggested that it might have been introduced in these islands.

This macaque is dusky but looks almost blackish from a distance. It has a long tail and is found in the tropical rain forests with very tall trees and thick undergrowth. It is habitually arboreal and found on the upper storey of the tree. It sometimes takes shelter in thick undergrowth of the forests. This macaque is frequently observed near the coast but its crab-eating habit is not yet confirmed. Rather, it has been reported to live on wild fruits, banana, papaya, etc.

This macaque makes a crashing noise as it leaps from tree to tree. Troops consist of 6 to 30 members. Sometimes, this macaque is found to be solitary. Quantitative status of this animal is not known.

Pigtailed Macaque

Capt, T A. Brown obtained one alive subadult female of this monkey at Port Blair (South Andaman) in 1864 and presented it to Managerie of Zoological Society of London on July 8, 1868. This was considered indigenous by Bartlett who (in 1869) named it as *Macacus andamanensis*. However, it is at present synonymised under *Macaca nemestrina leonina*.

Although this monkey was considered indigenous by Bartlett (*op. cit.*), Hamilton (1870) reported that the above stated specimen (the holotype) was said to have been transported to Andaman Island from Burma. According to Dobson (see Miller, 1902) this monkey was introduced in Andaman Island from Burma. Miller (1902) also supported this view. Dr Abbot who visited these islands during January-March, 1901 did not report the occurrence of this monkey.

As there is no further record of this monkey from these islands since its description, it can safely be concluded that it does not occur here at present.

Other Macaque

While commenting on the fauna of the Nicobar Islands, Blyth (1846) writes, "Capt. Lewis informed me of a large monkey, evidently

a *Presbytis* (vel *Semnopithecus*) from his description, of which he vainly attempted to obtain specimens from its remarkable wilderness" Besides this note, neither any information nor any record of this monkey from the Nicobars is available. Therefore, it appears that the monkey said to have been seen by Capt. Lewis might be a pet which got released or escaped in the forests of the Nicobars but ultimately did not survive.

However, this may be made clear that excepting the Crab-eating Macaque as mentioned earlier no other monkey occurs in the Andamans and the Nicobars at present.

Tree Shrews

The Nicobar Tree Shrew, *Tupaia nicobarica* is the only species of Tree Shrew available in these islands. This animal occurs in the Nicobars, that too, in Little and Great Nicobar Islands only. *Tupaia* was formerly considered as belonging to the order Insectivora but later on accepted as a primitive Primate and is now placed under a separate order, Scandentia, by some Zoologists (McKenna, 1975).

'Tupai' is a Malay word for squirrels and the generic name *Tupaia* is probably derived from this local name. *Tupaia* which resembles squirrels externally to some extent can easily be distinguished by the presence of longer nose and absence of long black whiskers.

In 1858 naturalists of the Novara Expedition discovered this animal for the first time and found it on all the larger Nicobar Islands. Of course, in Great Nicobar Island it was found to be very abundant.

Two subspecies of this Tree Shrew are recognised, namely, *Tupaia nicobarica nicobarica* and *Tupaia nicobarica surda*. The former is found in Great Nicobar while the latter is available in Little Nicobar. According to Miller (1902) typical individuals of the Little Nicobar form are instantly recognisable "by dull, relatively lustreless and ill contrasted colour of the mantle and thighs as well as by the less yellow underparts". During a recent survey Saha (1980) collected some *Tupaia* specimens in Great Nicobar, which display the same colour pattern as mentioned by Miller in the case of *T. nicobarica surda* of Little Nicobar. This observation leads him to comment that Miller's *T. nicobarica surda* appears to be untenable. However, to form a definite opinion in this regard more critical examination of *Tupaia* specimens preferably from both Little and Great Nicobars is very much needed.

Habits of the Tree Shrews of these islands are not well studied. In Great Nicobar they are very common in forests. They are

found in different ecological niches—from the coastal mangroves to the interior of forests, from the forest floors to the top of the canopy and also in different forest clearings. They are diurnal and mainly arboreal and are as active as squirrels in running along the branches of the tree. But they spend most of the time on the ground and in low bushes. They play and run very fast on the sand and are very active, particularly in the afternoon. These animals are constantly on the move. They are omnivorous and feed on fruits, seeds, leaves and insects.

Palm Civet

The Andaman Masked Palm Civet, *Paguma larvata tytleri* is the only Palm Civet found in these islands, that too, in the Andamans only. It is an endemic subspecies having no trace of any spot or stripe on its body. It has white whiskers and a white band on the forehead and nose.

The habit of this Palm Civet is not well studied. It is arboreal and omnivorous, feeding on fruits, roots and small vertebrates. It prefers to live in forests although sometimes it is seen near the coast perhaps to catch shore animals like crabs, fishes, etc. It gathers its food in the tree top as well as on the ground.

This Palm Civet was first recorded by Blyth in 1860 on the basis of an imperfect skeleton which was sent to the Museum of the Asiatic Society by Capt. Hodge, then in command of the guard ship, SESOSTRIS at Port Blair. But Blyth was unable to determine its specific identity. Lieutenant-Colonel Tytler, the then Governor of Port Blair, described this species in 1864 and named it after himself.

Jungle Cat

The status of the Jungle Cat of these islands is in a confused state. There is an earlier record of *Felis chaus* (Blyth in Mouat, 1863) from the Andamans. But neither any specimen nor any subsequent record of this species from these islands is available. Recently two feral cats have been recorded from Baratang Island, South Andaman by Nath and Chaturvedi (1975). One is a red mutant of "torquata type" feral cat and the other is a "grey torquata type"

Wild Pig

Two subspecies of wild pigs, namely, the Andaman Wild Pig, *Sus scrofa andamanensis* and the Nicobar Wild Pig, *Sus scrofa nicobaricus* occur in the Andamans and the Nicobars respectively. Both the subspecies are endemic in these islands.

Blyth (in Mouat, 1863) described these animals as diminutive Wild Pig. The Andaman Wild Pig is black in colour with scant covering of hair. It has an indistinct crest over the neck and back. Its snout is elongated and tail is very short, tufted with brown hair at the tip. The Nicobar Wild Pig is also black with a faint brownish wash on dorsal side. It is slightly larger in size and its skull and teeth are distinctly larger than those of the Andaman Wild Pig.

Both the Andaman and the Nicobar Wild Pigs inhabit jungles but frequently visit cultivation. They are very active in the early morning and evening, go about in bands of 4 to 20 and live on omnivorous diet like tubers, crops, roots, offal, carrion and even insect larvae. These pigs form the chief source of protein for the local inhabitants.

According to Dr. Abbot (his letter dated April 23, 1901 to Miller *vide* Miller, 1902) the Nicobar Wild Pig was introduced in the Nicobars long ago and it was originally *Sus cristatus* of the mainland. He has also added further that the present diminutive shape of this pig is the result of insularity and inbreeding.

Deer

The Spotted Deer or Chital (*Axis axis*), the Barking Deer, (*Muntiacus muntjak*), and the Sambar (*Cervus unicolor*) were introduced in the Andamans during the very early part of the Twentieth Century (around 1915). Population of Chital increased so rapidly that they became menace to the forestry and agriculture. To check the population of the deer two male panthers were released in Middle Andaman during 1952. Those panthers were not traceable afterwards. Ultimately the Chital had to be declared vermin for some years. Again its number started decreasing alarmingly due to wild hunting mainly for skin and horn. This has compelled the Wild Life authorities of these islands to restrict their hunting.

The Chital is now distributed in Middle and South Andamans while the Barking Deer is sometimes seen in Middle Andaman only. No census studies of deer have ever been made in these islands. At present occurrence of Sambar in these islands is very doubtful.

Mention may be made here that a pair of Chital was turned loose by Capt. Lewis in a favourable locality on one of the Nicobar islands during the first half of the Nineteenth Century (exact locality not mentioned) (see Blyth, 1846). But later, this species was never seen or recorded in the Nicobars.

Goat

In 1891 some domestic goats were left on Barren Island by a Station Steamer from Port Blair. This is a volcanic island. Even then, these goats adapted themselves so well there that in 1901 Dr. Abbot found them in hundreds. These goats are still present in large number in this island.

Barren island does not have any permanent source of fresh water with the result that the goats of this island (as stated by the people who visited the place) have taken to drinking sea water. Of course, this drinking habit needs authentic confirmation.

Terrestrial Shrew

Terrestrial shrews belonging to the genus *Crocidura* are the only representatives of insectivores occurring in these islands. Four species, namely, the Andaman Island Spiny Shrew, *Crocidura hispida*, the Miller's Spiny Shrew, *Crocidura andamanensis*, the Jenkin's Andaman Spiny Shrew, *Crocidura jenkinsi* and the Nicobar Spiny Shrew, *Crocidura nicobarica* have been reported so far. Out of these, first three are distributed in the South and Middle Andamans and the last one is found in Great Nicobar Island.

Incidentally, all the 4 species of Terrestrial Shrews are endemic in these islands.

Elephant

Elephants were initially brought in these islands from Indian Mainland and Burma by some contractors for dragging timber. While unloading from ships on their very first trip, a few male and female elephants escaped into the jungle. These elephants along with some other ones which, due to excessive workload of the extraction camp, fled later into the jungle, formed some herds of their own and started roaming in Tugapur and Betapur (Middle Andaman) in the wild. At present there are about 25 such elephants in Interview Island while 4 or 5 elephants have migrated to Gandhinagar (Diglipur, North Andaman).

Further, a few agencies like Forest Department, Forest Plantation and Development Corporation, Jayashree Timbers and some private lumbering contractors maintain elephants in these islands for timber dragging. Total strength of such tame elephants is about 157.



Crabeating Macaque



Nicobar Tree Shrew

Andaman Wild Pig





Shortnosed Fruit Bat

Flying Fox, *Pteropus* sp.



Elephant engaged in lumbering



Bats

As mentioned earlier, 26 species and subspecies of bats are known so far from these islands, out of which 6 are endemic in the Andamans and 6 in the Nicobars (see Appendix IX A). The Flying Foxes (genus *Pteropus*) are represented by 6 species and subspecies out of which 3, namely, the Narcondam Flying Fox, *Pteropus melanotus satyrus*, Nicobar Flying Fox, *P. melanotus melanotus* and the Car Nicobar Flying Fox, *Pteropus faunulus* are endemic. The first one is confined to Andaman Islands while the second and third ones are available in Nicobar Islands only. The Flying Foxes are normally found hanging in trees in large numbers during the day. At dusk they fly from their roosting places to their food trees. They are known as Fruit Bats as they live on varieties of fruits. Other Fruit Bats of these islands include Shortnosed Fruit Bat (genus *Cynopterus*) and Dawn Bats or Longtongued Fruit Bat (genus *Eonycteris*). The first one is represented by 3 species and subspecies including 2 endemic (one in the Andamans and the other in the Nicobars) and the second one by one species. The Shortnosed Fruit Bat lives usually in the mountain caves, occasionally in tree-hollows and frequently under the eaves of houses during the day time. As mentioned earlier, only a single species of Dawn Bat, *Eonycteris spelaea* is known so far from the Andamans. It uses caves for roosting.

All the remaining 16 species of bats are insectivorous. The Horseshoe Bats (genus *Rhinolophus*) are represented by 3 species and subspecies all of which are endemic and found in Andaman Islands. These bats live in caves, buildings and sometimes in hollow trees. While roosting, they wrap their wing membranes around their bodies like a cloak.

Three species of Leafnosed Bat (genus *Hipposideros*) are also found in these islands. All of them including two endemic ones are so far known from the Nicobars only. These bats are also cave dwellers although they may be found in buildings and hollow eaves.

There are 2 species of Pipistrelle, namely, *Pipistrellus camortae* and *Pipistrellus coromandra* both of which are found in the Nicobars. These are very small bats whose roosting sites include rock crevices, buildings, caves, hollow trees and banana fronds.

One species of the False Vampire Bat, *Megaderma spasma* is found in Andaman Islands. This bat roosts in groups mostly in caves. In addition, a single species each of the Mouseeared Bat (*Myotis dryas*), Clubfooted Bat (*Tylonycteris pachypus fulvida*), Tickell's Bat (*Hesperoptenus tickelli*), Lesser Yellow Bat (*Scotophilus kuhli*) and Bentwinged Bat (*Miniopterus australis pusillus*) also

occur in these islands. Among these, first three are known so far from the Andamans while the remaining two are found in the Nicobars. Among these bats, the Mouseeared Bat is a cave-dweller, the Clubfooted Bat lives in hollow joints of bamboo stems (for which it is known as the Bamboo Bat also) and the Tickell's Bat often roosts in foliage of trees. The Lesser Yellow Bat is the common house roosting bat while the Bentwinged Bat lives in caves, culverts, rock-clefts, roofs and eaves of houses. Furthermore, there are the Blackbeared Tomb Bat (*Taphozous melanopogon melanopogon*) and the Blyth's Pouchbearing Bat (*Taphozous saccolaimus crassus*) which roost in hollow trees of these islands.

Rats

Rats of these islands are noteworthy in the sense that out of 14 species and subspecies available here 11 are endemics. The House Mouse, *Mus musculus castaneus*, which is cosmopolitan in distribution, is so far known from Andaman Islands only. The House Rats (*Rattus* spp.) of these islands are represented by 13 species and subspecies. Excepting *Rattus rattus alexandrinus* and *Rattus rogersi* all others are endemic in these islands. Among the endemics, 5 are confined to the Andamans, 4 to the Nicobars and the remaining 2 are distributed in both the groups of Islands (see Appendix IX A).

Squirrels

The Northern Palm Squirrel, *Funambulus pennanti* is the only squirrel found in these islands. It is more or less common around Port Blair. It has recently been introduced through human agency.

Marine Mammal

Most conspicuous marine mammal of these islands is the Common Dolphin, *Delphinus delphis*. This dolphin is frequently seen in Andaman waters, sometimes in large school. It is slender, usually not longer than 2.4 m and a powerful swimmer, probably the swiftest of all cetaceans. This mammal is capable of attaining speed over 30 knots. Fortunate tourists travelling particularly from Port Blair to Neil or Havelock Island and *vice versa* in inter-island ships may chance enjoy a very thrilling scene of some individuals of the Common Dolphin riding the bow waves of the ship up to a considerable distance, keeping pace with the speed of the vessel, and then returning to their own territories. This dolphin is carnivorous and feeds on shoaling species of fish and cuttle-fish (cephalopods).

The Sea Cow, *Dugong dugon*, which lives in Indian Ocean from the East Coast of Africa to Malaya Archipelago is also found around these islands. This mammal is seldom over 2.4 m and is very rarely seen. Contrary to the Common Dolphin, it is very sluggish in its movement. It mainly browses on sea grass and marine algae. In these islands dugongs are occasionally caught in fishing nets. Records reveal that 4 dugongs were caught near Diglipur (North Andaman) during 1960-66, one near Port Blair in 1976, 2 near Teressa Island in 1967 and 1976 and 2 at Campbell Bay (Great Nicobar) in 1977 and 1981 (James, 1985). Dugongs nurse their youngs by 'holding them to the pectorally situated breast with one flipper' in human style. This habit of dugong is probably the source of mermaid legends. Looking from a great distance early sea-fares might have mistaken nursing dugong mother for half-woman and half-fish.

Whales have also been reported from these islands. Two False Killer Whales, *Pseudorca crassidens* were entangled in gill nets during 1976 and 1977 off Port Blair (Sivaprakasham, 1980), of which larger one was 3.9 m. Two False Killer Whales were also stranded near Shastrinagar (32 km from Campbell Bay), of which one was a male and the other a female, measuring 4.37 m and 4.87 m in length respectively (James, *op. cit.*).

BIRDS

Andaman and Nicobar Islands are comparatively rich in avifuna. So far 242 species and subspecies of birds have been reported from these islands (Appendix IX B). This report includes several species of birds (*e.g.* the Grey Pelican, the Eastern Sand Plover, the Eastern Knot, the Javan Gullbilled Tern, the Little Bunting, etc.) which were collected or seen only once sometimes by single example, that too, during the Nineteenth Century. The birds of these islands can be grouped as follows

Residents	43
Resident and endemic	95
Migrants	100
Introduced	4

According to Abdulali (1964), avifaunal affinities of these islands appear to be closer to India than to Burma or Malay, except for the Nicobar Pigeon and the Megapode which are having Australasian affinities. Some species of resident birds display distinct

morphological differences from island to island in size, colour and colour pattern forming different subspecies.

The introduced birds of these islands, namely, the South Indian Grey Partridge, the Peafowl, the Common Myna and the House Sparrow are thriving well. The first one was introduced in Port Blair in 1890 and the other three at Ross Island (opposite Port Blair) during the second half of the Nineteenth Century.

Following are the birds found in these islands.

Storm Petrels

The Wilson's Storm Petrel, *Oceanites oceanicus oceanicus* is said to have been reported from these islands (see Biswas, 1964). According to Abdulali (*op. cit.*), 'if this record is with reference to Humes's observation between Preparis and the Cocos, repeated by Butler (1900) it is too indefinite to be accepted.'

Recently however, Abdulali (1981) saw a dark Petrel with white underparts from far away off Battye Malve, south of Car Nicobar. He has tentatively identified the bird as the Duskyvented Storm Petrel, *Fregetta tropica melanogaster*.

Tropic-birds and Pelicans

Two species of Tropic-birds, namely, the Redtailed Tropic-bird, *Phaethon rubricauda rubricauda* and the Longtailed Tropic-bird, *P. lepturus lepturus* have been reported from these islands. The former constitutes a doubtful record and the latter is a straggler. Abdulali (1981) saw this bird from a distance near North Cinque Island and collected one specimen roughly off Batty Malve, south of Car Nicobar. These sea birds are predominantly silky white with a very long central tail feather. They are usually seen singly far out at sea.

The Grey Pelican, *Pelecanus philippensis* which is found in India, Pakistan and Sri Lanka is an accidental vagrant in Nicobar islands. It is grey above, greyish white below and possesses dark brown feet.

Hérons, Egrets and Bitterns

Hérons hunt their prey standing motionless or wait for it. In the resting position their neck takes the shape of an 'S'. They thrust their head forward in a flash to hit their prey or to seize it with their beak.

The Eastern Grey Heron, *Ardea cinerea rectirostris* and the Eastern Purple Heron, *Ardea purpurea manilensis* are found both in the Andamans and the Nicobars. The Grey Heron is a long-legged and long-necked marsh bird frequenting estuaries, mangrove swamps and tidal creeks. Its food chiefly consists of fish and frog. The Purple Heron is also a marsh bird. But its legs are relatively short and it prefers extensive reed beds for feeding and breeding.

The Andaman Little Green Heron, *Ardeola striatus spodiogaster* is endemic in these islands. It builds its nest usually on mangrove trees near tidal swamps. In the marshes and paddy fields of Andaman Islands, the Indian Pond Heron, *Ardeola grayii grayii* is often seen standing motionless or walking stealthily to catch its prey. The Chinese Pond Heron, *Ardeola bacchus* can be found in tidal waters and marshes of Andaman Islands.

The Eastern Large Egret, *Ardea alba modesta* is found in Andaman Islands. Its occurrence in Nicobar Islands is based on a possible sight record (Abdulali, 1964). It is a snow-white, heron-like solitary marsh bird whose feeding habits are similar to those of the Grey Heron. In the mangrove swamps, estuaries and marshes the Smaller Egret, *Egretta intermedia intermedia* may be found. It is slightly smaller than the Large Egret and sometimes seen in flocks.

The Cattle Egret, *Bubulcus ibis coromandus* may be seen around the grazing cattle or at inundated freshly ploughed fields in flocks. The Little Egret, *Egretta garzetta* may also be found in large numbers near the edge or in shallow inland waters or in inundated paddy fields. It is a lanky snow-white bird very similar to the Cattle Egret but distinguishable from it by the presence of a black bill (*versus* yellow bill of the Cattle Egret).

The Eastern Reef Heron, *Egretta sacra* is a coastal bird which affects rocky shores. During the low tide it searches small marine animals on exposed rocks for food. This bird breeds on inaccessible coastal cliffs.

The Night Heron, *Nycticorax nycticorax nycticorax* which affects backwaters, coastal lagoons and estuaries is active during the twilight hours and night except in the breeding season. It feeds on frogs, fishes, insects, tadpoles, etc. During the day the Night Heron roosts in large numbers in mangroves or other bushes near or overhanging some water resources.

Bitterns in general lead a concealed life in the aquatic shore vegetation. There are the Chestnut Bittern, *Ixobrychus cinnamomeus*,

the Yellow Bittern, *I. sinensis* and the Nicobar Tiger Bittern, *Gorsachius melanolophus minor* available in these islands. Among these the last one is endemic and rare in Nicobar Islands. It is recorded so far from Katchal, Tillanchong, False Harbour, etc. It affects the streams and swampy patches in thick forests. The Chestnut Bittern and the Yellow Bittern are among the smallest herons inhabiting the reed beds of shallow waters and standing paddy fields. The latter is also found in the mangrove swamps.

Ducks

The Lesser Whistling Teal, *Dendrocygna javanica*, the Common Teal, *Anas crecca crecca*, the Andaman Teal, *Anas gibberifrons albugularis* and the Cotton Teal, *Nettapus coromandelianus* are the ducks found in these islands. Besides, there is also a single record of Spotbill Duck, *Anas poecilorhyncha* from Andaman Islands and was reported after a cyclone.

The Lesser Whistling Teal is small and pale brown in colour, having the size of a domestic duck. It is found in marshes and reservoirs and is usually seen in flocks of 10 to 15.

The Common Teal is a winter visitor to these islands seen in marshes or in shallow reservoirs and the Cotton Teal is a straggler.

The Andaman Teal is endemic in the Andamans as well as some other nearby islands like Landfall, Coco, Great Coco, etc. It has the size of a Common Teal and is seen mainly in mangrove fringed creeks in flocks of 4 to 10 and sometimes more. During the daytime it generally roosts amongst the mangrove trees or on rocks exposed during the low tide. Population of Andaman Teal has greatly reduced primarily due to destruction of its habitat as a result of human settlement and random hunting. In the Middle Andaman, the supposed stronghold of this bird, its population is estimated to be 200 to 300.

Hawks

The Andaman Blackcrested Baza, *Aviceda leuphotes andamanica* is endemic in South Andaman. It is of the size of a pigeon and bears a great resemblance with the Indian Blackcrested Baza but its underparts are unbarred. The Pariah Kite, *Milvus migrans govinda* and the Brahminy Kite, *Haliastur indus indus* are available in these islands of which the former is a vagrant and the latter a resident found near the sea coast and inland water.

Among the Goshawks, the Car Nicobar Shikra, *Accipiter badius butleri* and the Katchal Shikra, *A. badius obsoletus* are the subspecies

endemic in Car Nicobar and Katchal Islands respectively. Both these subspecies resemble the Indian Shikra to a great extent and are of the size of house crow. Of course, the Car Nicobar Shikra is smaller (30 cm in length) than the Katchal Shikra (33-34 cm in length).

The Horsfield's Goshawk, *A. soloensis* is a winter visitor and common in Katchal, Little Nicobar, Great Nicobar as well as Andaman Islands. On the other hand the Asiatic Sparrow-Hawk, *A. nisus nisosimilis* which is also a winter visitor in the Andamans, is not common. Again, the Eastern Sparrow-Hawk, *A. virgatus gularis* which is a resident in both the Andamans and the Nicobars is fairly common in South Andaman.

The Andaman Crested Hawk-Eagle, *Spizaetus cirrhatus andamanensis* is another endemic subspecies in the Andaman Islands. It is found in the outskirts of forests near open places in South Andaman. This bird is of the size of a kite with a markedly shorter crest. Normally it is brown above, white below with broad chocolate streaks on breast and narrow black longitudinal streaks on throat. Its prey includes small mammals like rats, squirrels and birds like pigeon and chicken.

The Whitebellied Sea Eagle, *Haliaeetus leucogaster* is a mighty handsome bird found near the sea-shore of both the Andamans and the Nicobars. It is of the size of a larger kite and its head, neck, underparts and terminal portion of the tail are white and dorsal part is ashy brown. This bird is very much temperamental and agile and is often seen perched upright on coastal reefs or on the branches of tall trees. It looks very elegant while attacking the prey which chiefly consists of fish and sometimes sea-snake.

Three species of true harriers (genus *Circus*) are available in these islands, all of which happen to be winter visitors. They are the Pale Harrier, *Circus macrourus*, the Montagu's Harrier, *C. pygargus* and the Marsh Harrier, *C. aeruginosus aeruginosus*. All these harriers are of the size of a smaller and slimmer kite and are distinguished by long legs and a striking arrangement of the head plumage forming a prominent facial disc. The Marsh Harrier frequents marshes and flooded rice fields, the Montagu's Harrier is found in swamps, grassy fields and cultivations while the Pale Harrier affects hillside.

The Serpent Eagles (genus *Spilornis*) of these islands are remarkable in view of the fact that out of 5 species and subspecies available here 4 are endemic. The species, *Spilornis cheela* is represented by the following 3 subspecies

- 1 Andaman Pale Serpent Eagle, *S. cheela davisoni*. It is endemic and a common resident of both the Andamans and the Nicobars, affecting tidal creeks and mangrove swamps.

2. Nicobar Crested Serpent Eagle, *S. cheela minimus*. It is endemic in Nicobar group of Islands particularly Camorta, Nancowry, Teressa and Katchal. It is so far found in the forests near rivers.
3. Malayan Serpent Eagle, *S. cheela malayensis*. It is a resident bird reported so far from Great Nicobar Island from forest edges and forest clearings near the coasts.

Besides *Spilornis cheela*, two other species of *Spilornis* are also found in these islands, namely, *S. eligni* (Andaman Dark Serpent Eagle) and *S. klossi* (Great Nicobar Serpent Eagle). The first one is endemic in South Andaman and frequents inland forests and clearings while the other one seems to be endemic in Great Nicobar Island and found in the tropical rain forests.

Mention may be made here that two species of Serpent Eagles are found to co-exist in South Andaman as well as Great Nicobar, but they occupy different ecological niches. The Andaman Pale Serpent Eagle and the Andaman Dark Serpent Eagle are seen in South Andaman islands, of which the former lives in the tidal creeks and the mangrove swamps and the latter occupies the inland forests and forest clearings. Both the Great Nicobar Serpent Eagle and the Malayan Serpent Eagle occur in Great Nicobar. But the first one lives in the closed type of the tropical monsoon forests while the other is found in the forest edges and forest clearings near the coast.

The Osprey, *Pandion haliaetus haliaetus* is a winter visitor to Andaman Islands. It frequents estuaries and hunts mainly fishes.

Falcons

The following 4 species and subspecies of true falcons (genus *Falco*) are reported from these islands

- 1 European Kestrel, *Falco tinnunculus tinnunculus*. It is a pigeon-sized bird which affects hills and open grassland. This bird is a winter visitor to Andaman Islands.
2. East Himalayan Kestrel, *F. tinnunculus interstinctus*. This bird resembles the European Kestrel to a great extent and is a winter visitor to Andaman Islands. It is found in rugged hills and open country.
3. Shaheen Falcon, *F. peregrinus peregrinator*. It is a kite sized bird and is resident in Nicobar Islands, frequenting rugged hills.

Eastern Reef Heron





Andaman Grey Teal



Whitebellied Sea Eagle



Nicobar Megapode

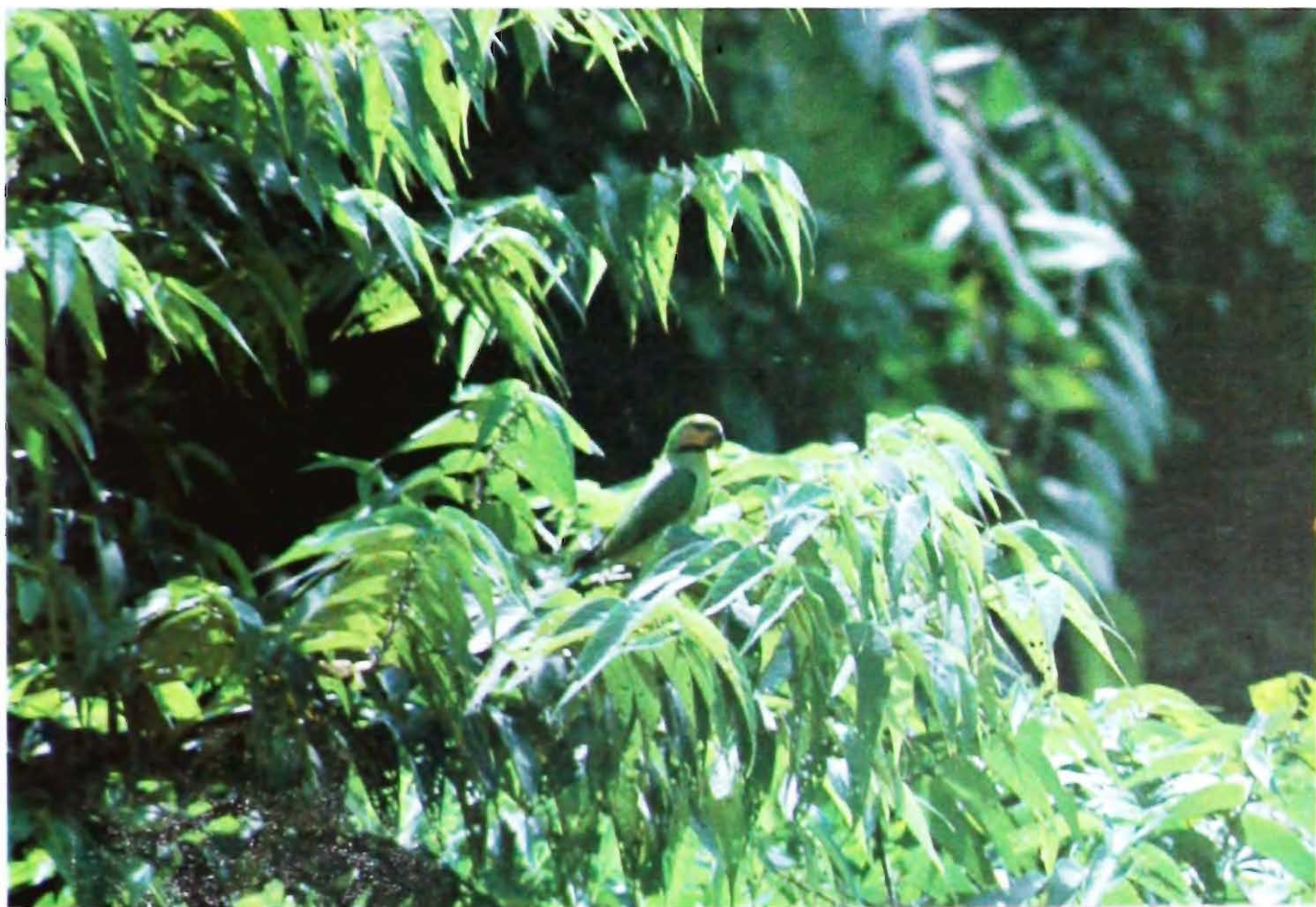
Pied Imperial Pigeon

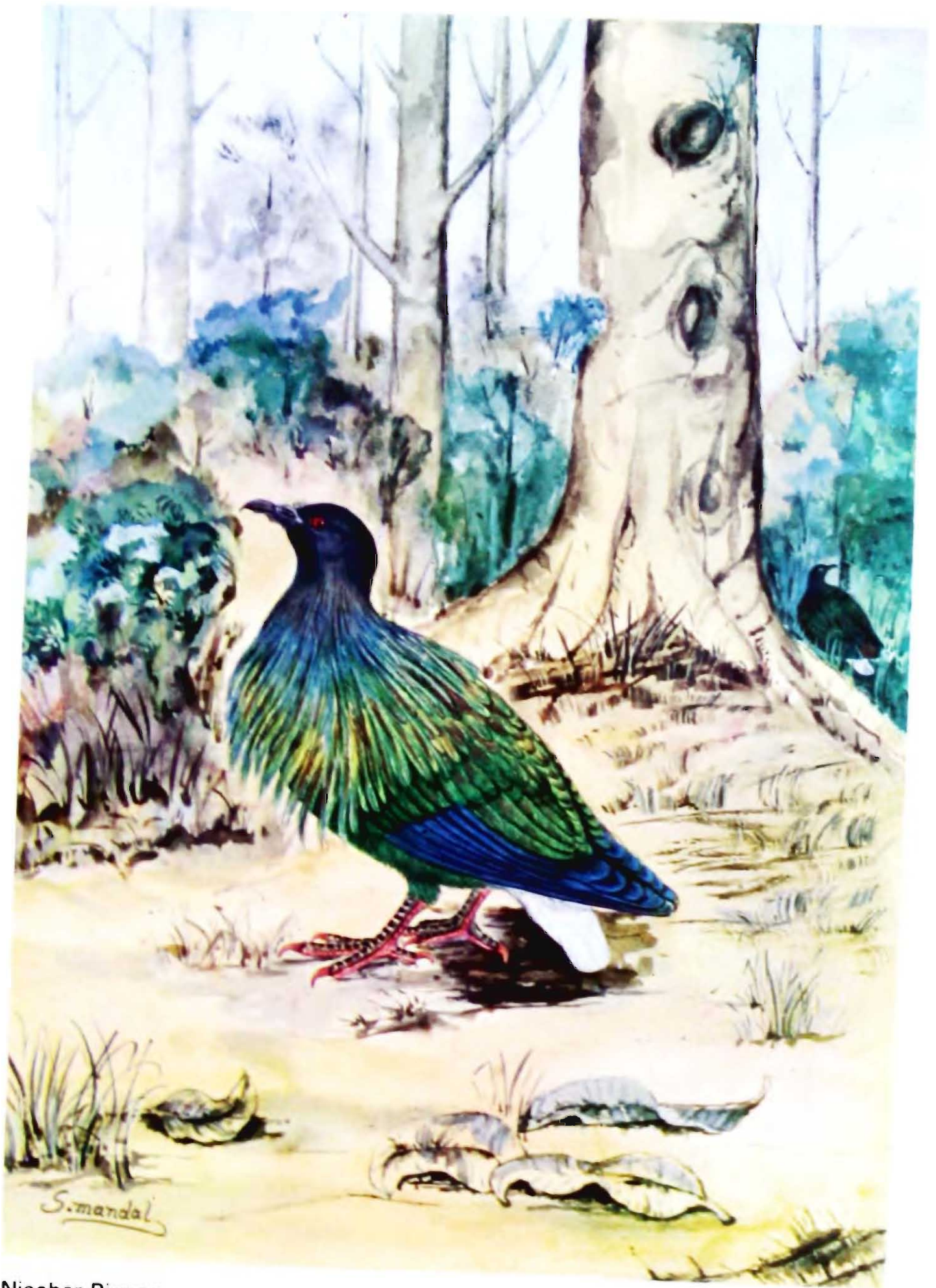


Hume's Brown Hawk-Owl



Gobar Redcheeked Parakeet





Nicobar Pigeon



Narcondam Hornbill



Andaman Greyrumped Swiftlet

4. Eastern Peregrine Falcon, *F. peregrinus japonicus*. This bird greatly resembles the Shaheen Falcon in appearance. It is a doubtful winter visitor of these islands.

Megapodes

The Megapode is a small ground bird, brown in colour having conspicuously large feet and a short tail. It is called "mound bird" because of its habit of building mound out of leaf litter and scraped-together sand.

The Nicobar Megapode, *Megapodius freycinet* looks like a jungle hen and lives in tropical moist dense forests along the sea-shore. It may be seen in pairs or sometimes in large parties. It is a fast runner and feeds on insects, worms, land snails and even vegetable matter. It builds mound upto 1.5 m high and 10 m or more in circumference in the forests near the sandy sea-shore above high tide marks. Possibly several females lay eggs in the same mound but they never take part in incubation. Heat generated by the decomposing humus incubates those eggs.

The Nicobar Megapode is represented by two subspecies, namely, the North Nicobar Megapode, *M. freycinet nicobariensis* and the South Nicobar Megapode, *M. freycinet abbotti*. The North Nicobar Megapode is paler in colour and found in the Nicobar group of Islands lying north of the Sombero channel (except Chowra and Car Nicobar). It is also reported from Coco Island and doubtfully from Little Andaman. The South Nicobar Megapode is a darker bird, endemic in Great Nicobar and Little Nicobar Islands.

Megapode was fairly common in Nicobar group of Islands only a few decades ago. But its population has greatly reduced because of random hunting for the flesh and collection of eggs.

Partridge, Quail and Peafowl

The Partridge, Quail and Peafowl are very poorly represented in these islands and known by one species each. The Quail is an endemic subspecies of Nicobar Islands while the Partridge and the Peafowl were introduced in Andaman Islands through human agency.

The South Indian Grey Partridge, *Francolinus pondicerianus pondicerianus* was introduced at Port Blair in about 1890. It is now found in fair number in the neighbourhood of Port Blair and sometimes falls an easy victim to the Andaman Palm Civet, *Paguma larvata tytleri*.

The Nicobar Bluebreasted Quail, *Coturnix chinensis trinkutensis* is the only quail representative of these islands and recorded so far from Car Nicobar, Trinket and Camorta. It is a diminutive dark quail, with bright yellow legs and displays sexual dimorphism.

The very well known Common Peafowl, *Pavo cristatus* was introduced in Ross Island around 1868. It disappeared during the Japanese occupation and then again was introduced by the Andaman Administration. At present only a few specimens of this bird are found in Ross Island.

Button Quail

One species of Button Quail, namely, Yellowlegged Button Quail, *Turnix tanki tanki* occurs in these islands. It is a resident bird and found more commonly in the Nicobars particularly in Car Nicobar, Teressa and Camorta Islands affecting grasslands and hills. Females are usually larger and more colourful.

Rails and Coots

The Andaman Bluebreasted Banded Rail, *Rallus striatus obscurior* is a common resident and endemic bird of both the Andamans and the Nicobars. It is a short-tailed bird having the size of a Grey Partridge, frequenting forests, paddy fields, marshes and reedy swamps.

In the marshy jungles of Andaman Islands another endemic species, the Andaman Banded Crake, *Rallina canningi* is also commonly available. It resembles the Indian Banded Crake to a great extent but differs from it in having deep, glossy ruddy chestnut colour above and on breast, and pale green bill and in lacking white colour on throat.

The Eastern Baillon's Crake, *Porzana pusilla pusilla* is found in Andaman Islands as a winter visitor. It is a quail like marsh bird which affects reed-beds and irrigated crops.

Near mangrove swamps and streams as well as jungles far away from water, the Andaman Whitebreasted Water Hen, *Amaurornis phoenicurus insularis* may be seen in these islands. It is endemic and reported to be fairly common in Barren Island despite absence of freshwater.

Besides these, the Water Cock, *Gallicrex cinerea* and the Indian Purple Moorhen, *Porphyrio porphyrio poliocephalus* may be seen in marshes, reed-beds and irrigated paddy fields. In addition

to these, there is a single record of the Malay Moorhen, *Gallinula chloropus orientalis* near Port Blair (Abdulali, 1964) This seems to be the only record of this species of bird from the Indian limits.

Plovers

All the Plovers of these islands are winter visitors excepting the Greyheaded Lapwing and the Eastern Sand Plover The former is a straggler while the latter is a vagrant. The following species of Plovers are known so far from these islands

- 1 Grey Plover, *Pluvialis squatarola*. It can be identified by experts from a distance by its three syllabic plaintive call "tlee-oo-ee" This bird is seen in flocks of 5 or 6 even up to 30, sometimes mixed with the Common Redshank (*Tringa totanus totanus*) and other waders usually on sandy shores and tidal mudflats.
2. Eastern Golden Plover, *P. dominica fulva*. This bird is also gregarious in habit and found in large flocks of 20-50 or even much more and sometimes with other waders. It prefers muddy shores, freshly ploughed fields and tidal mudfields.
3. Greyheaded Lapwing, *Vanellus cinereus*. It is quite common in West Bengal, Assam, Manipur and Bangladesh. But it is recorded as a straggler in Andaman islands. It affects marshy areas, ploughed fields and stubbles.
4. Large Sand Plover, *Charadrius leschenaultii leschenaultii*. It is seen in flocks usually with waders frequenting the intertidal zone of sandy sea-beaches, mudflats and estuaries of both the Andamans and the Nicobars.
5. Eastern Sand Plover, *C. asiaticus veredus*. This bird was recorded only once from the Andamans in winter plumage.
6. European Little Ringed Plover, *C. dubius curonicus*. This bird is seen in pairs or in small flocks on sea-shores and mudflats in Andaman Islands along with other waders. It has a round head with black and white pattern, short pigeon-like bill and bare yellowish legs.
- 7 Lesser Sand Plover, *C. mongolus atrifrons*. It is found in both Andaman and Nicobar Islands affecting sea-shores and mudflats.

Curlews, Sandpipers, Turnstone and Snipes

There are 3 species and subspecies of Curlews (genus *Numenius*) in these islands popularly known as the Whimbrel, the Eastern Whimbrel and the Eastern Curlew. All these birds are winter visitors. They have long legs and long beaks curving downward and produce beautiful flute-like call.

The Eastern Curlew, *Numenius arquata orientalis* is a darkish sandy brown wader, having the size of a large country hen. The Whimbrel, *N. phaeopus phaeopus* and the Eastern Whimbrel, *N. phaeopus variegatus* quite resemble the Eastern Curlew except that they are smaller and have blackish crown with a long white stripe on either side. These birds frequent sea-shores and mudflats.

The Bartailed Godwit, *Limosa lapponica baueri* has been reported as a winter visitor to Nicobar Islands. Its beak is long and curved slightly upward. It is found in small flocks mainly on the sea coast along with other waders.

As many as six species of Sandpipers (genus *Tringa*) occur in these islands, as listed below

1. Common Redshank, *Tringa totanus totanus*
2. Greenshank, *T. nebularia*
3. Green Sandpiper, *T. ochropus*
4. Wood Sandpiper, *T. glareola*
5. Terek Sandpiper, *T. terek*
6. Common Sandpiper, *T. hypoleucos hypoleucos*

All these birds are winter visitors and distinguishable from the Curlews and the Bartailed Godwit by relatively shorter beak.

The Common Redshank may be seen in tidal creeks and estuaries solitary or in small parties. It has the size of a Grey Partridge (about 28 cm length), wades into shallow water or runs about on the muddy edges and feeds on worms, aquatic insects, molluscs and crustaceans. In association with the Common Redshank, the Greenshank is also seen. This bird is larger (being about 36 cm in length) and distinguishable from the Redshank in having olive green legs (*versus* red legs of the Redshank) and slender bill slightly curved upward. From amongst the remaining 4 species of Sandpipers, the Green Sandpiper and the Wood Sandpiper are known from the Andamans only while the other two, that is, the Terek Sandpiper and the Common Sandpiper are found both in the Andamans and the Nicobars. All the Sandpipers are of the size of the Grey Quail frequenting marshy grounds, mudflats, sea-shore and coastal lagoons. Among these birds the

Wood Sandpiper is more gregarious and usually seen in flocks of more than a dozen even upto 30. The Terek Sandpiper moves in small flocks usually upto 10. The other sandpipers of these islands mostly keep solitary or in scattered twos or threes.

In the rocky beach, the Turnstone, *Arenaria interpres interpres* is seen in small flocks among the Sand Plovers. It is a dark brown-and-white wader of the size of the Grey Quail having silky white chin and throat, straight black bill and orange-red legs.

Four species of common snipes (genus *Gallinago*), namely, the Pintail Snipe, *Gallinago stenura*, the Fantail Snipe, *G. gallinago gallinago*, the Great Snipe, *G. media* and the Jack Snipe, *G. minima* are found in these islands. All these snipes are winter visitors with the exception of the Great Snipe which has been recorded as a straggler only once from the marshes in Andaman Islands. From among the other three, the Pintail Snipe affects paddy stubble and fallow land while the Fantail Snipe and the Jack Snipe frequent marshy ground.

Besides, 6 species of shore birds belonging to the genus *Calidris* occur in these islands. They are

1. Eastern knot, *C. tenuirostris*
2. Eastern Little Stint, *C. ruficollis*
3. Little Stint, *C. minuta*
4. Temminck's Stint, *C. temminckii*
5. Longtoed Stint, *C. subminuta*
6. Curlew-Sandpiper, *C. testacea*

Among these birds, the Little Stint is the smallest and slightly larger than the House Sparrow. It is found in large flocks in association with other stints, curlews and sandpipers.

In the sea-coasts, tidal mudflats and muddy creeks the Broad-billed Sandpiper, *Limicola falcinellus falcinellus* is seen as a winter visitor. It keeps singly and is usually found in association with the Little Stint and the Temminck's Stint.

Crab Plover

In the mudflats and coral reefs of both the Andamans and the Nicobars the Crab Plover, *Dromas ardeola* is found sometimes in large flock upto 60-70 individuals. It is a winter visitor and can be easily identified by its large black beak, long light grey-blue legs and white plumage, with the black back and the black primaries.

Stone Plover

The Australian Stone Plover, *Esacus magnirostris magnirostris* is a resident bird and found in almost all the islands of the Andaman group and adjacent islands like Little Coco. It frequents reefs and sandy beaches in pairs and small parties sometimes vied with the Crab Plover. It conceals and sleeps throughout the day and becomes active at dusk.

Pratincoles

The Collared Pratincole, *Glareola pratincola maldivarum* is a winter visitor to the Andamans. It is a short-legged Plover whose tail is short and less markedly forked. This bird is active at dawn and dusk and keeps in large flocks frequenting tidal mudflats and marshes.

Terns

Terns are medium sized gull-like birds whose wings are usually long and narrow, tails are mostly long and forked and bills are straight, terminating to a point. Nine species of terns are known to occur in these islands, majority of which belong to the genus *Sterna* which is represented by the following 5 species

- 1 Rosy Tern, *Sterna dougallii korustes*
2. Eastern Blacknaped Tern, *S. sumatrana sumatrana*
3. Philippine Brownwinged Tern, *S. anaethetus anaethetus*
4. Indian Lesser Crested Tern, *S. bengalensis bengalensis*
5. Sooty Tern, *S. fuscata nubilosa*

All these Terns are grey above and grey or white below. Their heads have a dark cap or at least a black crown with a white forehead. Among these birds the Indian Lesser Crested Tern is the largest, being about 43 cm in length and keeps to off-shore water and very rarely near sea-coast. This tern is easily distinguishable by the presence of a prominent nuchal crest. The Sooty Tern, whose occurrence in these islands needs further confirmation is almost of the same length as that of the former. But it lacks nuchal crest and keeps far out at sea. The Rosy Tern and the Eastern Blacknaped Tern are found to be common in these islands from May to October and breed on small rocky islets, off east coast of the Andamans. The Philippine Brownwinged Tern has been recorded only twice from Andaman Islands and seen far out at sea.

The following are the other 4 species of terns recorded from these islands

1. Whitewinged Black Tern, *Chlidonias leucopterus*. It is a relatively small bird (about 23 cm in length), mainly dark underneath. Its beak and feet are red and tail is white. This bird has been recorded only once from the Andamans.
2. Javan Gullbilled Tern, *Gelochelidon nilotica affinis*. This bird is also recorded only once from the Andamans. It is a larger bird (about 38 cm in length) having short and black bill.
3. Noddy Tern, *Anous stolidus pileatus*. Its basic colour is smoky chocolate brown and the cap is gray to white.
4. Whitecapped Noddy, *A. tenuirostris worcesteri*. It can hardly be distinguished from the Noddy Tern from a distance excepting that it is smaller (33 cm *versus* 41 cm in length) and darker. This bird has been recorded from the Andamans as a straggler.

Pigeons

The following are the pigeons found in these islands

1. Andaman Greyfronted Green Pigeon, *Treron pompadora chloroptera*
2. Nicobar Green Imperial Pigeon, *Ducula aenea nicobarica*
3. Andaman Green Imperial Pigeon, *Ducula aenea andamanica*
4. Pied Imperial Pigeon, *Ducula bicolor*
5. Andaman Wood Pigeon, *Columba palumboides*

Excepting the Pied Imperial Pigeon all other pigeons are endemic in these islands.

The Andaman Greyfronted Green Pigeon is a small green pigeon (about 30 cm in length) having red legs. It looks very much like the Indian Green Pigeon in the field. Its forehead is pure grey and lower tail-coverts are green tipped with yellow. It is found in both the Andamans and the Nicobars although it is more common in South and Middle Andamans, affecting tall evergreen forests.

Both the Green Imperial Pigeon and the Pied Imperial Pigeon are large, heavily built fruit pigeons which are extensively arboreal and rarely found on the ground. As the name indicates, the Nicobar Green Imperial Pigeon is endemic in the Nicobars. It is very com-

mon and abundant in almost all the islands of the Nicobar group. It is pale vinaceous grey in colour, with metallic green back and tail. It is distinguishable from the Andaman Green Imperial Pigeon in having dull rufous brown under tail-coverts (*versus* deeper chestnut maroon tail-coverts of the Andaman race). The Andaman Green Imperial Pigeon is endemic and common in the Andaman group of Islands.

The Pied Imperial Pigeon is white in colour with black wings and tail. It is abundant in the Nicobars, fairly common in Narcondam Island and rare in the other parts of the Andamans.

The Andaman Wood Pigeon is one of the largest members of the genus *Columba*, being about 41 cm in length. It is endemic in both the Andamans and the Nicobars. It is less abundant than the Green Imperial Pigeon.

Doves

One species of the Cuckoo-Dove, *Macropygia rufipennis*, occurs in these islands. It is a medium-sized reddish brown dove with a long tail. This bird is endemic in both the Andamans and the Nicobars and is represented by two subspecies, namely, the Nicobar Cuckoo-Dove, *M. rufipennis rufipennis* and the Andaman Cuckoo-Dove, *M. rufipennis andamanica*. The first one is restricted to the Nicobars while the other is found in the Andamans only.

The Burnese Red Turtle Dove, *Streptopelia tranquebarica humilis* which is a brightly coloured little dove, having a narrow black collar on hindneck, occurs as resident in the foothills of Andaman Islands.

Besides, there is the Emerald Dove in these islands with two subspecies, namely, the Andaman Emerald Dove, *Chalcophaps indica maxima* and the Nicobar Emerald Dove, *C. indica augusta*. It is a ground living dove which frequents the forests. The Andaman Emerald Dove is brownish pink in colour with brilliant metallic emerald green mantle. It is endemic in Andaman Islands. The Nicobar Emerald Dove is richer in colour than its Andaman counterpart and endemic in Nicobar Islands.

The Nicobar Pigeon, *Caloenas nicobarica nicobarica* is a ground living bird and endemic in Nicobar group of Islands, particularly Car Nicobar, Batti Malv, Tillanchang, Terresa, Camorta, Nancowry, etc. It is also recorded from the Andamans (South Andaman, Havelock Island, Barren Island, South Sentinel Island) and Coco Island as straggler. Its general coloration is lustrous, metallic blue green with copper bronze underparts and white tail-

coverts and tail. The feathers of the hindneck are elongated, forming a glistening heckle.

Parrots

Parakeets (genus *Psittacula*) are abundantly found in these islands. They are represented by the following 4 species, all of which are endemic in these islands:

1. Large Andaman Parakeet, *Psittacula eupatria magnirostris*. It is grass green in colour with a bright red shoulder-patch. This Parakeet is very common in the Andamans.
2. Andaman Redbreasted Parakeet, *P. alexandri abbotti*. It is also grass green in colour with plum-red breast and throat. It is reported so far from Andaman group of Islands and is found to be very common in South and Middle Andamans. By the turn of this century Osmaston (1906) observed this parakeet to come into Port Blair "in tens of thousands in December and January, devouring the paddy"
3. Blyth's Nicobar Parakeet, *P. caniceps*. It is also a grass-green parakeet with black head markings. This parakeet keeps to the top of tall trees of Montschall, Kandul and Great Nicobar
4. Redcheeked Parakeet, *P. longicauda*. It is represented by 2 subspecies, the Andaman Redcheeked Parakeet, *P. longicauda tytleri* and the Nicobar Redcheeked Parakeet, *P. longicauda nicobarica*. The first one is seen in the cultivated areas and surrounding forests sometimes in very large flocks particularly around ripening paddy fields of Andaman Islands. It is also recorded from Cocos and Preparis islands. The second one occurs in Nicobar islands in large number and affects cultivations, forests and mangroves. This bird is considered to be an agricultural pest.

The Indian Lorikeet, *Loriculus vernalis vernalis* is a very common bird of both the Andamans and the Nicobars affecting the evergreen forests. It is a diminutive parrot with crimson coloured rump.

Cuckoos, Koels and Crow-Pheasants

Cuckoos of these islands include

1. Indian Cuckoo, *Cuculus micropterus micropterus*. It is a resident bird of these islands affecting the moist deciduous

and evergreen forests. This cuckoo possesses a black band anterior to the white edge of the tail.

2. Cuckoo, *C. canorus canorus*. It is a passage migrant and found in the Andamans during the month of November
3. Himalayan Cuckoo, *C. saturatus saturatus*. During the summer it is frequently seen in the hilly forests of both the Andamans and the Nicobars.
4. Emerald Cuckoo, *Chalcites maculatus*. This Cuckoo seems to be a winter visitor. It affects evergreen forests.
5. Violet Cuckoo, *C. xanthorhynchus xanthorhynchus*. It is a resident bird of these islands and prefers evergreen jungles.

In addition to these, the Andaman Koel, *Eudynamys scolopacea dolosa* is also available here. It is an endemic bird of these islands and known so far from Narcondam Island and the Nicobars frequenting jungles and trees around the settlements. The Andaman Crow-Pheasant, *Centropus andamanensis* is another endemic bird of these islands commonly found in bushes, ploughed fields and mangrove swamps. It resembles the Common Crow-Pheasant but differs from it in having brown coloured head, body and tail.

Owls

Owls are immediately recognised by their large heads, forwardly directed eyes, the seeming absence of necks and very soft plumage. Altogether 7 species and subspecies of owls are known, all of which are endemic in these islands.

The Andaman Barn Owl, *Tyto alba deroepstorffi* is a rare resident and endemic bird in Andaman Islands and reported so far from Port Blair and South Cinque Island. It has the size of a house crow with about 36 cm in length. Its facial veil is heart-shaped, eyes are relatively small and blackish brown and wings are long and rather pointed.

The Andaman Scops Owl, *Otus balli* is a small nocturnal true owl (or 'eared' owl) and seems to be quite common in Andaman Islands, inhabiting the settlements and cultivations. It has the size of a Myna, being about 19 cm in length. Its general colour is rufous brown with numerous black-edged white spots on the underparts, crown and neck. Hume described this bird as 'the handsomest' looking one of all our Indian Scops Owls.

The Lesser Scops Owl, *Otus scops* is also a small slim 'eared' owl which is represented by two subspecies, namely, the Andaman Lesser Scops Owl, *O. scops modestus* and the Nicobar Lesser Scops Owl, *O. scops nicobaricus*. The former is cinnamon-brown above with faint spots and reported so far from South Andaman while the latter, although resembles the Andaman subspecies to a great extent, is considerably larger and known from Camorta Island and Great Nicobar

The following 3 species and subspecies of Hawk-Owls are available in these islands

- 1 Hume's Brown Hawk-Owl, *Ninox scutulata obscura*. It is dark greyish brown above with whitish forehead. It is endemic in both the Andamans and the Nicobars, frequenting forests about the settlements and rubber plantations.
2. Andaman Brown Hawk-Owl, *Ninox affinis affinis*. It is deep brown with distinctly bright rufous-brown spots. It is an endemic subspecies of Andaman Islands.
3. Nicobar Brown Hawk-Owl, *Ninox affinis isolata*. It greatly resembles the Andaman subspecies but differs from it in being less ashy on underparts. It is an endemic subspecies of Nicobar Islands and recorded so far from Car Nicobar, Trinket, Camorta and probably Great Nicobar

Nightjars

Nightjar is a crepuscular and nocturnal bird with soft plumage, long wing, longish tail and short legs. Its beak is short and broad with enormous gape. Two species of Nightjars are reported from these islands. One is the Andaman Longtailed Nightjar, *Caprimulgus macrurus andamanicus*. It is an endemic subspecies in Andaman Islands and common in Middle and South Andamans. This subspecies is not recorded so far from the south of Macpherson Strait. During the day time it roosts among leaves on the forest floor and at dusk it becomes active in the mangrove swamps searching for its food.

The other nightjar of the islands is the Japanese Jungle Nightjar, *Caprimulgus indicus jotaka*. It has only once been reported as a migrating individual at sea off Andaman Islands in April.

Swifts

Three species of swiftlets occur in these islands of which two,

namely, the Andaman Greyrumped Swiftlet, *Collocalia fuciphaga inexpectata* and the Whitebellied Swiftlet, *C. esculenta affinis* are endemic.

The Andaman Greyrumped Swiftlet is very well known to the people of these islands because of its capability of forming a white nest which is used in China and Southeast Asia in soups, known as birds' nest soup. For this reason this bird's nest has a considerable commercial value. This bird is popularly known as Hawa-bill. It is a slender blackish-brown swift having the size of a sparrow (about 12 cm in length). It is common in the Andaman and less so in the Nicobars. It builds nest close to one another on the walls of rock-caves by the shore at Chiriatapu (South Andaman), South Button, Neil, South Cinque, etc. Its nest is white and looks like a bowl of about 6 cm diameter and 1.5 cm depth. During the day time it is found to hawk over mangrove, rubber plantations, forests and cultivations.

The Whitebellied Swiftlet is also small (about 10 cm in length) and has the glossy blue-black underparts and white belly. It is very common in both the Andamans and the Nicobars. It frequents human settlements, office buildings, dak bungalows and roosts and nests in factory-sheds, tool houses, etc.

The Hume's Swiftlet, *Collocalia brevirostris innominata* is a resident bird of Andaman islands. According to Osmaston (1906) 'this bird probably breeds in the caves along the south coast of the island'

Besides, 2 more species of Swifts are also known from these islands. One is the Brownthroated Spinetail Swift, *Chaetura gigantea indica* and the other is the Eastern Swift, *Apus apus pekinensis*. The first one is a resident bird of Andaman Islands, affecting the evergreen and moist-deciduous forests while the second one is a passage migrant (straggler) of the Andamans.

Kingfishers

Ten species and subspecies of Kingfishers are found to occur in these islands, of which 8 are endemics.

The Indian Small Blue Kingfisher, *Alcedo atthis bengalensis* is a resident bird of these islands frequenting road side ditches and streams. The other resident Kingfisher of these islands is the Black-capped Kingfisher *Halcyon pileata* which is found along the sea-shore, mangrove swamps, creeks and estuaries.

The following are the endemic kingfishers of these islands

- 1 Andaman Blueeared Kingfisher, *Alcedo meninting rufigaster*. It is found in South and Middle Andamans along the mangrove bordered creeks and forest-streams more commonly than the Indian Small Blue Kingfisher
2. Andaman Threetoed Forest Kingfisher, *Ceyx erithacus macrocarus*. It is seen in both the Andamans and the Nicobars in tidal creeks. This Kingfisher is rare in Andaman Island.
3. Andaman Storkbilled Kingfisher, *Pelargopsis capensis osmastoni*. It is fairly common in Andaman Islands frequenting the mangrove-fringed tidal creeks. It can be recognised by its large size (about 38 cm) and big blood-red dagger-shaped bill.
4. Nicobar Storkbilled Kingfisher, *Pelargopsis capensis intermedia*. This kingfisher is fairly common along the sea-shore, mangrove swamps and tidal creeks of Nicobar Islands.
5. Andaman Ruddy Kingfisher, *Halcyon coromanda mizorhina*. It is rufous brown with a white rump and bright red bill and feet. It is endemic in Andaman islands and is frequently seen in North Andamans but not common in other parts. This kingfisher affects deep mangrove swamps. Hume (1874) observed this bird in Barren and South Jolly Boy Islands also.
6. Andaman Whitebreasted Kingfisher, *Halcyon smyrnensis saturator*. It is purplish blue above and deep chocolate on underparts having conspicuous glistening white colour on the neck and middle of the breast. It is endemic in the Andamans and very common in South and Middle Andamans. This kingfisher is found along the sea coast, mangrove swamps, forest clearings and even sometimes in some distant inland.
- 7 Andaman Whitecollared Kingfisher, *Halcyon chloris davisoni*. It is another common and endemic kingfisher of Andaman and Coco Islands frequenting the sea-coast, tidal creeks, mangrove swamps and forest edges. It is a black billed whitecollared kingfisher having the underparts sullied with buff.

8. Nicobar Whitecollared Kingfisher, *Halcyon chloris occipitalis*. It is endemic and found commonly throughout the Nicobar groups of Islands in the mangrove swamps, tidal creeks and coconut groves. It is very similar to its Andaman sub-species but differs from it in having a very broad buffy white supercilium to the nape.

Bee-eaters

Two species of Bee-eaters are seen in these islands, namely, the Andaman Chestnutheaded Bee-eater, *Merops leschenaulti andamanensis* and the Bluetailed Bee-eater, *Merops philippinus philippinus*. The former is an endemic subspecies of Andaman and Coco Islands. It is grass green in colour with slender, curved and pointed black bill. It may be commonly seen near the streams and roads running through the forests.

The Bluetailed Bee-eater is a winter visitor of both the Andamans and the Nicobars affecting the neighbourhood of streams.

Roller

The Andaman Broadbilled Roller, *Eurystomus orientalis gigas* is the only Roller known in these islands. It is dark greenish brown and purple blue black in colour, having blackish head and orange-coloured broad bill. It is an endemic bird of Andaman Islands and commonly seen in the clearings in high evergreen forests.

Hoopoe

The Tibetan Hoopoe, *Upupa epops saturata* was once recorded in South Andaman in October, 1876 but since then it has not been noticed again.

Hornbill

The only Hornbill of these islands is *Rhyticeros narcondami* which is popularly known as Narcondam Hornbill. It is an endemic bird in the Andamans and is restricted to a very small island, Narcondam. It is slightly larger than a kite (about 66 cm in length) Its bill is horn-shaped, cream-yellow in colour The head and neck of the male is rufous. Its tail is white and the rest of the plumage is black, glossed with dark green. The female is black, with a white tail. It is a noisy and fearless bird living exclusively on wild pigs. The population of this bird is more than 200 (Hussain, 1984) Even then, this bird is vulnerable in view of its very restricted

distribution. Recently Hussain (1984) has studied the nesting site and nesting behaviour of this hornbill.

Woodpeckers

Two species of woodpeckers, namely, the Andaman Black Woodpecker, *Dryocopus javensis hodgei* and the Andaman Fulvous-breasted Pied Woodpecker, *Picoides macei andamanensis* occur in these islands. Both the woodpeckers are endemic in Andaman Islands. So far, there is no report on the occurrence of any woodpecker from the Nicobars.

The Andaman Black Woodpecker has the size of a pigeon, about 38 cm in length. It is fairly common in Andaman Islands frequenting tall trees in the high evergreen forests. The other woodpecker as stated above is also a common one in the Andamans, found in open jungles and in the neighbourhood of cultivations. It is a bulbul sized Pied Woodpecker (18 cm in length), being black above, barred and spotted with white.

Pitta

Pitta of these islands is represented by one species, namely, the Nicobar Hooded or Greenbreasted Pitta, *Pitta sordida abbotti*. It is darker both above and below, having a dark median line on crown. Its upper wing-coverts and tail-coverts are blue. It is an endemic bird found in Great and Little Nicobars keeping to the ground in heavy forests.

Swallows

Two species of swallows are found in these islands, namely, the Eastern Swallow, *Hirundo rustica gutturalis* and the Javan House Swallow, *H. tahitica javanica*. The first one is a winter visitor to these islands, frequenting cultivations, coastal backwaters, etc. and the latter seems to be a resident of Andaman Islands building its nest in houses as well as caves on the shore.

Shrikes

Only 2 species and subspecies of shrikes, namely, the Brown Shrike, *Lanius cristatus cristatus* and the Philippine Shrike, *Lanius cristatus lucionensis* are known from these islands. Both the shrikes are winter visitors frequenting forest edges and forest clearings, secondary jungles and gardens around human habitations. The Philippine Shrike seems to be more common between the two.

Orioles

The following 3 species and subspecies of orioles are found in these islands, all of which are endemic:

- 1 Andaman Blacknaped Oriole, *Oriolus chinensis andamanensis*. It is a very common and conspicuous oriole of the Andamans particularly South and Middle Andamans. It is bright golden yellow with black in wings and tail. This oriole is found in open forests and around human settlements.
2. Nicobar Blacknaped Oriole, *O. chinensis macrourus*. It is endemic in Nicobar Islands and is recorded so far from Car Nicobar, Central Nicobars, Nancowry, Camorta, Trinket, Great Nicobar, etc. It is very similar to its Andaman counterpart in appearance excepting that its wings are comparatively large, over 150 mm (*versus* under 140 mm in *O. c. andamanensis*). It affects the open forests and around human settlements.
3. Andaman Blackheaded Oriole, *O. xanthornus rubeni*. It is known so far from South Andaman only. It is brilliant golden yellow in colour and its head, throat and upper breast are jet black.

Drongos

Six species and subspecies of drongos are known in these islands out of which the following 4 are endemic.

- 1 Large Andaman Drongo, *Dicrurus andamanensis dicruriformes*. It is endemic in North Andaman, Great Coco and Table Islands. This bird is of the size of Myna (about 35 cm in length), having metallic blue green above and dull velvety black below, with deeply forked tail. It has a tuft of hair filaments (of about 2 cm in length) emerging from forehead either erect or backwardly curved. This bird frequents forests, principally the jungles immediately within the belt of coconut palms surrounding the coast.
2. Small Andaman Drongo, *D. andamanensis andamanensis*. It is endemic in Little, South and Middle Andamans. It resembles the Large Andaman Drongo excepting that it is smaller. This drongo is seen in flocks usually more than a dozen, sometimes in association with the Fairy Blue Bird, the Andaman Whiteheaded Myna, the Barred Cuckoo Shrike and the Eastern Small Minivet.

3. Andaman Rackettailed Drongo, *D. paradiseus otiosus*. It is endemic and widely distributed in Andaman group of Islands. It possesses two long wire-like spatulatipped streamers in tail. Its frontal crest is absent or obsolete. It is fairly common in forested areas.
4. Nicobar Rackettailed Drongo, *D. paradiseus nicobariensis*. It is very similar to its Andaman counterpart in appearance excepting that it is smaller and has a short frontal crest. It affects the forested areas of the entire Nicobar group of Islands.

Other drongos of these islands are the Grey Drongo, *Dicrurus leucophaeus leucogenis* and the Whitecheeked Grey Drongo, *D. L. salangenis*. These drongos have been reported from the Andamans. These are possibly stragglers.

Starlings and Mynas

The following are the starlings and mynas found in these islands:

- 1 Whitebreasted Swallow-Shrike, *Artamus leucorhynchus humei*. It is endemic in Andaman Islands and Great and Little Coco. It is a slaty grey short-tailed bird with head and neck purplish brown and lower rump and tail-coverts white. It frequents forest clearings, rubber plantations and openly wooded country.
2. Andaman Glossy Stare, *Aplonis panayensis tytleri*. It is a black myna blended with brilliant green, having conspicuous scarlet-crimson eyes. It is an endemic subspecies and widely distributed in both the Andamans and the Nicobars frequenting coconut groves as well as forests and open country with tall trees. This bird is abundantly seen at Port Blair from February to June. During the rest of the year its whereabouts is unknown.
3. Whiteheaded Myna, *Sturnus erythropygius*. Its head, neck and underparts are cream-white. It is frequently seen in small parties or in flocks around forest edges, open grassland and on hill side usually in association with drongos, cuckoo-shrikes, minivets, etc. This myna is represented by the following 3 subspecies all of which are endemic in these islands
 - a. Andaman Whiteheaded Myna, *S. erythropygius andamanensis*. It is endemic and very common in Andaman

Islands. This subspecies has been introduced in Camorta Island.

- b. Nicobar Whiteheaded Myna, *S. erythropygius erythropygius*. It is endemic in Car Nicobar only.
- c. Katchal Whiteheaded Myna, *S. erythropygius katchalensis*. It is endemic in Katchal Island only.

The Katchal form can be differentiated from the Car Nicobar form in having pale grey rump (*versus* rufous rump) and from the Andaman form in having chestnut-rufous colour under tail-coverts (*versus* pale rufous colour under tail-coverts).

- 4. Rosy Pastor, *S. roseus*. It seems to be an irregular winter visitor to Andaman Island.
- 5. Daurian Myna, *S. sturninus*. A single specimen of this myna was collected by Hume (1874) when it flew on board a ship between Car Nicobar and Little Andaman. Again, 2 more specimens were collected by him from a flock of 70-80 in Camorta. It may be an occasional winter visitor to these islands.
- 6. Common Myna, *Acridotheres tristis tristis*. It is very common and abundant throughout South Andaman in cultivations and in the neighbourhood of homesteads, villages and town. It was introduced by Col. Tytler at Ross Island round about 1867
- 7 Andaman Hill Myna, *Gracula religiosa andamanensis*. It is endemic in both the Andamans and the Nicobars and found to be common in Middle and South Andamans as well as Central, Little and Great Nicobars. There is no report so far on the occurrence of this bird from Little Andaman and Car Nicobar. This myna from the Nicobars is appreciably larger than that from the Andamans. Moreover, Abdulali (1967) pointed out that the Nicobar forms can be differentiated from the Andaman form by the presence of 'two large naked lappets joined at the back of the neck at the top end, leaving no feathered portion in between'

Crows

The Andaman Tree Pie, *Dendrocitta bayleyi* is endemic in Andaman Islands and commonly seen in pairs and sometimes in

loose flocks on tall trees of dense evergreen forests of South and Middle Andamans. It has the size of a myna with overall length of about 36 cm including about 22 cm tail. Its general coloration is bluish ashy, more dark near head, neck and mantle with underparts chestnut excepting breast which is dark bluish ashy diffusing to rufescent ashy on lower side.

The Eastern Jungle Crow, *Corvus macrorhynchos levaillanti* is quite common in the Andamans particularly in Port Blair. It affects the town as well as villages and hamlets around the forest.

Cuckoo-Shrikes

The following 3 species of Cuckoo-Shrikes are available in these islands, all of which are endemic:

- 1 Andaman Large Cuckoo-Shrike, *Coracina novaehollandiae andamana*. It is endemic and fairly common in Andaman Islands. This bird is frequently seen in scrub, light forests and even on trees standing in the open.
2. Barred Cuckoo-Shrike, *C. striata dobsoni*. It is endemic in the Andamans affecting heavy and moist evergreen forests.
3. Nicobar Pied Cuckoo-Shrike, *C. nigra dobsoni*. It is endemic in both the Andamans and the Nicobars and reported so far from Port Blair, Trinket and Camorta. It keeps to forest edges and secondary growth.

Minivets

The Andaman Scarlet Minivet, *Pericrocotus flammeus andamanensis* is another endemic bird in Andaman Islands and is reported so far from the forests around Port Blair and Mount Harriet (South Andaman).

The Eastern Small Minivet, *P. cinnamomeus vividus* is a resident bird of Andaman Islands. It may be seen in mangroves and other forested areas and sometimes in open country.

Moreover, there is a single record of Ashy Minivet, *P. divaricatus divaricatus* from these islands (from near Port Blair) on November 19, 1897 (Butler, 1899).

Fairy Bluebird

The Fairy Bluebird, *Irena puella puella* is a resident bird of both

the Andamans and the Nicobars, mostly seen on tree-tops in small parties of 6 to 8. For food, it readily comes down to bushes.

Bulbuls

The following species of bulbuls are available in these islands

- 1 Andaman Blackheaded Bulbul, *Pycnonotus atriceps fusco-flavescens*. It is endemic and has been seen so far in the South and Middle Andamans, frequenting light deciduous forests and thick jungles in pairs. This bulbul is not very common. It is olive green above, dusky on crown and sides of the head and bright yellow on belly and under tail surface. It has a dark band across the tail and a few black feathers on rump.
2. Andaman Redwhiskered Bulbul, *P. jocosus whistleri*. It is another endemic bird of Andaman Islands found commonly in South and Middle Andamans. It frequents towns and open country and it may enter houses like the House Sparrow. This bulbul was introduced into the Nicobars and is now seen in Trinket and Camorta. It can be conveniently diagnosed by the presence of a pointed black crest, short red ear-tuft and rich ruddy brown underparts.
3. Nicobar Bulbul, *Hypsipetes nicobariensis*. It is endemic in Nicobar islands. It seems to be very common and is found singly or in pairs or in small parties sometimes in large congregation on some large feeding trees.

Flycatchers

The Olive Flycatcher, *Rhinomyias brunneata nicobarica* is a common winter visitor to Great and Little Nicobar Islands. Its breeding range is unknown. It keeps to the forests and sometimes gardens and stays close to the ground in low bushes.

The Brown Flycatcher, *Muscicapa latirostris* is another common winter visitor to both Andamans and the Nicobars. It is seen in wide habitats like woodland scrub, cultivations, forest edges and groves near the village, keeping usually to the lower branches of the tree.

Further, the Eastern Redbreasted Flycatcher, *Muscicapa parva albicilla* is a winter visitor and reported so far from Narcondam Island.

The following flycatchers are endemic in these islands

1. Nicobar Paradise Flycatcher, *Terpsiphone paradisi nicobarica*. It is endemic and common in the Nicobars and perhaps a rare winter visitor to South Andaman. It is of the size of a bulbul and keeps to shady forests, gardens and scrubs. Its male is rufous with bluish black throat and very long tail-streamers.
2. Andaman Blacknaped Flycatcher, *Hypothymis azurea tytleri*. It is a partially fan-tailed, azure-blue flycatcher with black patch on nape, a black bar across throat and blue abdomen. It is endemic in the Andamans and Great and Little Cocos frequenting well wooded areas.
3. Car Nicobar Blacknaped Flycatcher, *H. azurea idiochroa*. It greatly resembles the former but differs from it in having white belly. It is an endemic subspecies of Car Nicobar
4. Nicobar Blacknaped Flycatcher, *H. azurea nicobarica*. It is endemic and common in the Nicobars but not found in Car Nicobar. It is also a white-bellied flycatcher and greatly resembles the former excepting that its wings are comparatively small, averaging less than 70 mm.

The Mangrove Whistler, *Pachycephala grisola*, is a resident bird of Andaman Islands. It is olive brown and seen singly or in pairs in mangrove fringed shores affecting mangroves and other nearby small trees.

Warblers

Thirteen species and subspecies of warblers are known from these islands of which 10 are winter visitors, one is resident and endemic in the Andamans, one is a resident in the Nicobars and the remaining one is a migrant.

The Andaman Palefooted Bush Warbler, *Cettia pallidipes osmastonii* is endemic in South Andaman and commonly seen around Mt. Harriet. It is a small warbler of the size of a sparrow whose upperparts are olive brown and underparts buffish, with pale yellowish legs and a distinct dark stripe through eye.

The Malaya Streaked Fantail Warbler, *Cisticola juncidis malaya* is a common resident of the Nicobars particularly of Car Nicobar, Trinket, Camorta and Great Nicobar frequenting grass fields. It is also a tiny warbler, dark brown above, prominently streaked with

black, buffish white below and having a fan-shaped, white-tipped tail. It keeps singly or in loose parties of about a dozen.

The following warblers are winter visitors

- 1 Pallas's Central Asian Grasshopper Warbler, *Locustella certhiola centralasiae* frequents the swamps of both the Andamans and the Nicobars.
2. Pallas's Siberian Grasshopper Warbler, *L. certhiola rubescens* affects the swamps of Andaman Islands.
3. Streaked Grasshopper Warbler, *L. lanceolata* affects dense bushes as well as open grasslands of these islands.
4. Thickbilled Warbler, *Acrocephalus aedon aedon* is found in marshy places, water-logged ground, abandoned forest clearings and undergrowth in light forests.
5. Manipur Dusky Leaf Warbler, *Phylloscopus fuscatus mariae*, affects swampy areas covered with long grasses, low bushes and even vicinity of cultivations.
6. Siberian Dusky Leaf Warbler, *P. fuscatus fuscatus*, keeps to low bushes, long grasses in swampy places and standing crops in damp area.
- 7 Siberian Yellowbrowed Leaf Warbler, *P. inornatus inornatus* is reported from Narcondam Island only.
8. Arctic Leaf Warbler, *P. borealis borealis* is seen in mangrove swamps and mango grooves.
9. Largebilled Leaf Warbler, *P. magnirostris*, frequents deciduous and evergreen forests.
10. Eastern Greenish Leaf Warbler, *P. trochiloides trochiloides*, affects mixed forests and open cultivated country.

Besides, a migrant of the Palelegged Leaf Warbler, *P. tenellipes* was once collected on a boat 16 km off Great Nicobar. It is possibly a winter visitor

Thrushes and Chats

The Northern Bluethroat, *Erithacus svecicus svecicus* is a winter visitor to Andaman Islands affecting gardens, fallow fields and bushes near water

During February, 1980 Dr Salim Ali collected one female specimen of the Siberian Blue Chat, *E. cyane cyane* from Chiriatapu (South Andaman) It is a straggler

The Andaman Magpie-Robin, *Copsychus saularis andamanensis* and the Andaman Shama, *C. malabaricus albiventris* are endemic birds of Andaman Islands. The first one is a longtailed black and white robin whose male is glossy blue black and female is pale. It is not a very common bird and found in South and Middle Andamans frequenting scrub jungle and villages. The Andaman Shama is fairly common in the dense forests of Andaman Islands. It also frequents gardens and scrubs by the side of paths. This bird has a long tail. Its head and back are glossy black and lower breast and centre of belly white.

The East Siberian Stone Chat, *Saxicola torquata stejnegeri* is a rare winter visitor to Andaman Islands. The Indian Blue Rock Thrush, *Monticola solitarius pandoo* has been recorded twice from the Andamans as winter visitor and once (probably accidental) from Car Nicobar

The following 4 species and subspecies of ground thrushes are available in these islands

- 1 Siberian Ground Thrush, *Zoothera sibirica sibirica*
2. Whitebrowed Ground Thrush, *Z. sibirica davisoni*
3. Andaman Ground Thrush, *Z. citrina andamanensis*
4. Nicobar Ground Thrush, *Z. citrina albogularis*

The first two are uncommon winter visitors to the Andamans, each of which has been recorded only once and the third and the fourth are endemic and common residents in the Andamans and the Nicobars, respectively. The Andaman Ground Thrush frequents dense forests and the Nicobar Ground Thrush is seen in forests, dark jungles and forest clearings.

Besides, there is the Dark Thrush, *Turdus obscurus* which is a straggler in South Andaman.

Pipits and Wagtails

Following are the 7 species of Pipits and Wagtails all of which are winter visitor to these islands

- 1 Richard's Pipit, *Anthus novaeseelandiae richardi*. It occurs in the Andamans frequenting damp and grassy ground, cultivations, stubble fields and bare hillsides.
2. Blyth's Pipit, *A. godlewskii*. It has been recorded only once from Andaman Islands.
3. Redthroated Pipit, *A. cervinus*. It may be seen in both the Andamans and the Nicobars in small flocks affecting marshy and damp ground as well as stubble fields.
4. Forest Wagtail, *Motacilla indica*. It affects evergreen forests of Andaman Island. It keeps singly in the forests and forages on the ground.
5. Yellow Wagtail, *Motacilla flava*. It is represented by the following 3 subspecies
 - a. Greyheaded Yellow Wagtail, *M. flava thunbergi* winters both in the Andamans and the Nicobars.
 - b. Shorttailed Greyheaded Yellow Wagtail, *M. flava simillima* is found in the Andamans.
 - c. Blueheaded Yellow Wagtail, *M. flava beema* is seen in the Nicobars.

The Yellow Wagtails are usually seen in small loose flocks affecting moist, grassy ground often intermixed with different subspecies

6. Gray Wagtail, *M. cinerea cinerea* is seen in both the Andamans and the Nicobars, frequenting plains, foothills and rocky streams keeping usually singly.
- 7 Whitefaced Pied Wagtail, *Motacilla alba leucopsis* winters in the Andamans frequenting streams, roads and cultivations.

Flowerpeckers

The Andaman Plaincoloured Flowerpecker, *Dicaeum concolor virescens* is the only flowerpecker available in these islands. It is a small, olive green flowerpecker, about 8 cm in length, having bright and pale-yellow belly. It is endemic in the Andamans and commonly found in South and Middle Andamans, frequenting such trees which are affected with *Loranthus*.

Sunbirds

Four species and subspecies of sunbirds are found in these islands all of which are endemic.

1. Andaman Olivebacked Sunbird, *Nectarinia jugularis andamanica*. It is endemic and common in the Andamans frequenting forests, scrubs and coastal mangroves.
2. Nicobar Olivebacked Sunbird, *N. jugularis klossi*. It is a common sunbird of the Nicobar group of Islands excepting Car Nicobar. It affects the same habitat as that of the former.
3. Car Nicobar Olivebacked Sunbird, *N. jugularis proselia*. It seems to be endemic and a common resident in Car Nicobar only occupying the same habitat as stated in the case of earlier subspecies.
4. The Nicobar Yellowbacked Sunbird, *Aethopyga siparaja nicobarica*. It is another species of sunbird of these islands, endemic and a common resident in the Nicobars known so far from Great and Little Nicobars, Kondul and Moore Islands. This bird frequents coconut groves, outskirts of forests and open country.

White-eyes

The Nicobar White-eye, *Zosterops palpebrosa nicobarica* is the only white-eye known in these islands. It is endemic in both the Andamans and Nicobars frequently seen in evergreen forests and gardens in pairs and sometimes in parties upto 50 mostly on trees. This bird is green above with a very distinct white-eye ring.

House Sparrows

The Indian House Sparrow, *Passer domesticus indicus* was introduced in Ross Island in 1882 and subsequently in 1895 by Mr O. H. Brookes. It is now seen in plenty in South Andaman in town, villages, scrub jungles and cultivations.

Munias

The only species of munia which is found to occur in these islands is the Whitebacked Munia. It is represented by the following two subspecies

- 1 Andaman Whitebacked Munia, *Lonchura striata fumigata*. It is endemic and a common resident in South and Middle Andamans, frequenting forest edges, gardens and open country.
2. Nicobar Whitebacked Munia, *L. striata semistriata*. It is endemic and a common resident in Car Nicobar and Central Nicobars affecting grasslands.

Buntings

The following 2 species of Buntings are known in these islands, all of which are winter visitors:

- 1 Yellowbreasted Bunting, *Emberiza aureola aureola*. It was recorded only once from the Nicobars. Davison shot a single female out of a flock of about 20 (see Hume, 1874).
2. Little Bunting, *E. pusilla*. There is a single record of this species from South Andaman.

REPTILES

Seventyseven species of reptiles have been recorded so far from these islands. These reptiles belong to 4 species of turtles, 1 species of crocodile, 40 species of snakes and 32 species of lizards. Among these, 13 species of snakes and 10 species of lizards are endemic. Cobra, King Cobra, Banded Krait and Pit Vipers are the venomous land snakes of these islands, of which King Cobra and Cobra are very rare and found in the Andamans while Pit Vipers are common in both the Andamans and the Nicobars.

Turtles

Turtles of these islands mainly include the Green Turtle, *Chelonia mydas* and the Hawksbill Turtle, *Eretmochelys imbricata*, of which the Green Turtle is the most common one.

The Green Turtle which is so named because of the dirty green colour of its shell and light green colour of its fat, is the largest of the marine turtles. This turtle is very much liked by man for consumption. Its breeding period extends from June to November. Female turtles congregate in large numbers for breeding in some spot preferably on sandy beaches. They dig holes in the sand roughly 60 cm deep, lay 350-600 eggs therein and fill those holes with sand before returning to the sea. Incubation period varies from 40 to 50 days. After hatching, hatchlings immediately rush to the sea for shelter

This turtle frequents inshore waters of less than 50 metre in depth and sheltered by reefs. It was very common in the vicinity of Andaman Islands only a few decades ago. At present its population is very much dwindled due to all time hunting for flesh, cartilage and eggs.

The Hawksbill Turtle which is so named for its bird-like head and beak is the smallest of the marine turtles. It is not so common in Andaman waters as the Green Turtle. It frequents coastal waters as well as bays and lagoons with muddy bottom. Its egg laying behaviour is similar to that of the Green Turtle. But it lays eggs during the day while the Green Turtle does the same during the night. Besides, as compared to the Green Turtle, the Hawksbill Turtle lays less number of eggs varying from 95 to 125. Its breeding season extends from November to February and incubation takes about 60 days.

The flesh of this turtle is not liked by man. Yet it is hunted sometimes in large numbers for the horny shields or keratin layer of its shell. This layer exhibits remarkably beautiful yellow brown translucence, when removed from the shell by heating. Keratin layer thus obtained is used for making fashionable toilet articles and furniture and for adornment.

Besides, two others, namely, the Malayan Box Tortoise, *Cuora amboinensis* and the Indian Flapshell Turtle, *Lissemys punctata granosa* are also found in these islands. The former has been recorded from Nicobar waters while the latter has very recently been found in the areas around Port Blair

CROCODILE

The only crocodile available in these islands is the Salt Water Crocodile, *Crocodilus porosus*. It is widely distributed in almost all such large islands of Andaman and Nicobar groups which support extensive mangrove swamps and tidal creeks. Belt of crane brakes near the transitional zone of the tidal mangrove and riverine forests seem to be the best nesting habitat for this crocodile.

In North Andaman Islands these crocodiles are found to make their nests in three types of vegetation zone, namely, tidal crane fringe, creeping crane and evergreen vegetation and cultivated land.

Clutch size of this crocodile ranges from 42 to 67 eggs with an average of 51. In the Andamans, Whitakar and Whitakar (1978) observed a crocodile nest with 72 eggs.

Quantitative status of this animal in these islands is not known. Its number has greatly reduced due to all season hunting for hide, collection of eggs for human consumption and shrinkage of habitats caused by human encroachment.

SNAKES

As mentioned earlier, there are 40 species of snakes known in these islands out of which 13 are endemic. Besides sea snakes and venomous land snakes, Blind Snake, Sunbeam Snake, Reticulated Python, Rat Snake, Trinket, Wolf Snake, Water Snake, Cat Snake, etc., are available in these islands as discussed below.

Blind Snake

The Common Blind Snake, *Typhlops braminus* seems to be common in these islands. It is worm like, brown or blackish, 12-15 cm long and found generally under logs, moist leaves and humus in the forests.

Two other blind snakes, namely, the Oate's Blind Snake, *Typhlops oatesi* and the Andaman Blind Snake, *T. andamanensis* have been recorded only once, that too, from the Andamans only.

Sunbeam Snake

The Sunbeam Snake, *Xenopeltis unicolor*, which is so called for its iridescent nature of scales, is usually found living under the logs or stones or even inside the earth near the rice fields and gardens in the vicinity of human habitations.

Python

The Reticulated Python, *Python reticulatus* is available in the Nicobar group of Islands. It is the largest and heaviest of all the Indian snakes. It is yellowish or light brown above with a dorsal series of large darker brown rhomboidal or oval spots which are often confluent with one another. It inhabits wet evergreen forests and lives on small mammals, birds and reptiles.

Rat Snake

The Indian Rat Snake or Dhaman, *Ptyas mucosus* is fairly common in the forests as well as near human habitations of Andaman Islands. It is an aggressive snake which runs after its prey very speedily on the ground. It is equally skilful on trees and can glide from one branch to another smoothly to pursue birds even on top branches.

With slight provocation it is very much excited and bites repeatedly. Sometimes this snake can flatten and inflate its neck region and produce hissing sound for which it is mistaken for cobra by many a people.

Trinkets

The Trinkets or Racers are the principal rodent eaters. They are tree dwelling colubrid snakes which use their ventral ridges to get hold of the tree trunks firmly and move about on the trees swiftly. These snakes are fairly common in the forests of Andaman Islands particularly in the bushes near the creeks of brackish water. The following three species of Trinkets are available in these islands:

- 1 Green Trinket, *Elaphe prasina*. It is uniformly green in colour, having interstitial skin, with black and white reticulations.
2. Yellowstriped Trinket, *E. flavolineata*. It is pale brown anteriorly with a yellow black-edged vertebral stripe which becomes gradually indistinct towards the hinder part of the body. Its tail is darker brown.
3. Redtailed Trinket, *E. oxycephala*. It is green above and its tail is light chestnut or buffish red.

Bronze Backs

The Bronze Backs (belonging to the genus *Dendrelaphis*) are also tree dwellers. They are bronzy olive or greenish or reddish above and can move on the branches of the trees very swiftly. They live entirely on trees or among bushes and never descend on the ground except for the search of food. During the day time only they hunt for their prey which chiefly consists of lizards and frogs. They also catch toads and insects occasionally for their food. Four species of the Bronze Backs are recorded so far, namely:

- 1 Andaman Bronze Back, *Dendrelaphis ahaetulla andamanensis*
2. Green Tree Snake, *D. cyanochloris*
3. Tiwari's Bronze Back, *D. humayuni*
4. Daudin's Bronze Back, *D. tristis*

Among these, the first one is endemic in both the Andamans and the Nicobars and the third one is endemic in the Nicobars only.

Cat Snakes

Three species of cat snakes, namely, the Andaman Cat Snake, *Boiga andamanensis*, the Smith's Cat Snake, *B. ochracea walli* and the Boie's Cat Snake, *B. dendrophilus* are found in these islands, out of which first one is endemic in Andaman Islands. The second one is found in both the Andamans and the Nicobars while the last one is recorded so far from the Great Nicobar only.

Cat snakes are also tree dwellers. They are nocturnal and extremely vicious in disposition. These snakes coil into a ball at the time of rest. Even when slightly provoked they react very offensively.

Flying Snake

The Flying Snake, *Chrysopelia paradisi* is a common tree-snake of these islands. Truly speaking these snakes can not fly. They simply drop from one branch of a tree to another lower one so quickly sometimes covering a long distance that it appears as if they are gliding. But, this is by no means a true flight or even a true gliding. This is simply a long vertical drop through the air. They are very slender snakes and chiefly lizard-eaters.

Wolf Snake, Andaman Banded Kukri and Blackheaded Hill Snake

In and around caves, stone-piles and tree-holes the Brown Wolf Snake, *Lycodon aulicus capucinus*, the Biswas's Wolf Snake, *L. tiwarii* and the Andaman Banded Kukri, *Oligodon woodmasoni* may be found. All these snakes are endemic in these islands.

The Wolf Snake is nocturnal. It is a very good climber and can cling to fairly smooth tree trunks or wall very nicely. The Andaman Banded Kukri possesses dark brown colour above, with narrow yellow longitudinal stripes. For such coloration and having the habit of stiffening and jerking when provoked, it is often mistaken for a krait. In fact, it is a quiet and inoffensive type of snake, nocturnal in habit and almost never bites.

Wall (1923) reported the Blackheaded Hill Snake, *Sibynophis bistrigatus* from the Nicobars, probably from Camorta Island. But occurrence of this snake from the Nicobars needs further confirmation.

Water Snake

All the water snakes live at least temporarily near water and feed on frogs and fishes. The following water snakes are seen in these islands.

- 1 Common Water Snake, *Xenocropis piscator*. It is represented by two subspecies, namely, *X. piscator piscator* and *X. piscator melanzostus*. Both the subspecies of this Water Snake are commonly found in the Andamans only. They are diurnal in habit and lie in the water keeping their snout tip at the surface waiting for frogs and fishes. But after grabbing the prey they generally move to land for consumption.
2. Nicobar Water Snake, *X. nicobarensis*. It is described on the basis of a single juvenile collected from Camorta Island (Nicobar)
3. Boie's Water Snake, *X. trianguligera*. It is a Malayan species that extends its range into the Indo-Chinese Region, as far north as Mergui. It has brilliant red, triangular spots on the sides of the body and is known from the Nicobars.
4. Striped Keelback, *Amphiesma stolata*. It is olive green or brownish above with black spots or reticulated cross bars intersected by two yellow or buff stripes near the sides of the body. This snake is very gentle in disposition and never attempts to bite.
5. Dogfaced Water Snake, *Cerberus rhynchops*. It is comparatively common in the mangrove swamps and estuaries of these islands. It lives in crab-holes or under rocks near shore-line and never goes far from water. It is very active during the night and lives chiefly on fishes.
6. Whitebellied Water Snake, *Fordonia leucobalia*. It is found in the coasts of Nicobar Islands. It chiefly feeds on crabs and swims far into the sea.
- 7 Banded Swamp Snake, *Cantoria violacea*. It is seen on the coasts of Andaman Islands.
8. Elephant Trunk Snake, *Acrochordus granulatus*. It is found around the coasts of the Nicobars. It is dark grey with whitish cross bars and chiefly feeds on fish.

Poisonous Snakes

Among the poisonous snakes Cobra, King Cobra and Banded Krait are reported so far from these islands, that too, from the Andamans only. The Andaman Cobra, *Naja naja kaouthia* is dark brown in colour, with a monocellate mark upon the hood. This snake is very

rarely found in the Andamans. The King Cobra, *Ophiophagus hannah* is the largest poisonous snake of the world. Although this snake inhabits Andaman Islands particularly North Andaman still it is very rarely seen. Comparatively common poisonous snake of these islands is the Banded Krait, *Bungarus andamanensis*. It is a non-hooded snake, remarkably quiet and inoffensive in disposition and almost never bites during the day time.

Pit vipers are well represented in these islands. Stoliczka who paid a long visit during the second half of the Nineteenth Century mentioned the occurrence of pit vipers in 'great number'

Pit vipers bear a great resemblance to vipers in appearance particularly in having a short tail and a broad, triangular head which is clearly distinct from the rest of the body. But they differ greatly from vipers in having a deep pit organ between the nostril and the eye. The following 4 species of pit vipers are available in these islands

- 1 Cantor's Pit Viper, *Trimeresurus cantori*
2. Andaman Pit Viper, *T. purpureomaculatus andersoni*
3. Brownspotted Pit Viper, *T. labialis*
4. Whitelipped Pit Viper, *T. albolabris*

Among these the first three are endemic and the second one seems to be common in these islands. These snakes may be seen during the day time but they are nocturnal, dwelling mainly in forests. Of course, the Whitelipped Pit Viper which is green above, blue, yellowish or whitish below seems to prefer gardens in the vicinity of human habitations.

Bite of pit vipers may cause pain, sometimes intense, at the site of bite followed by swelling. But death due to such bite is extremely rare.

Sea Snakes

Two species of sea snakes, namely, the Amphibious Sea Snake, *Laticauda laticauda* and the Colubrine Amphibious Sea Snake *L. colubrina* are found in these islands. These snakes are very poisonous. They are well adapted for marine life. Their tail is laterally compressed looking like a rudder. In the intertidal zone they are sometimes seen basking at the sun on the sea shore. These snakes are good swimmers and mainly live on eel-shaped fish.



Green Sea Turtle

Estuarine Crocodile





Reticulated Python

Smith's Gecko



LIZARDS

Lizards of these islands are represented by 32 species which include 11 species of Geckos, 8 species of Agamids, 11 species of Scincids (Skinks) and one species each of Dibamid and Varanid.

The Varanid, *Varanus salvator andamanensis* is popularly known as the Andaman Water Monitor. It is the largest lizard of these islands often attaining a length of 2 to 2.5 metres. It is an endemic subspecies having blackish coloration with small yellow spots and larger rounded spots arranged in transverse series. It possesses four powerful legs, each bearing five-clawed toes. The tail is thick and usually twice as long as the body and functions as a prehensile organ and as a potent weapon. But its best weapon is the sharp teeth and claws by which it can inflict severe wounds on its prey or enemy.

This monitor stays near the sea coast particularly near estuaries and can take to the water and even swim far out at sea, if disturbed. It can also run quickly on land with the help of its powerful legs and climb trees easily with the aid of its long, sharp claws. It is diurnal in habit and feeds on fishes, frogs, lizards, snakes, birds and rats. The Andaman Water Monitor has also the habit of stealing the crocodile eggs from the nest for consumption.

This monitor was found in large numbers only a few decades ago. But its population has considerably reduced at present as it is mercilessly caught and butchered by man mainly for meat for consumption and skin for commercial purpose.

Geckos

Geckos are small lizards which are quite vocal and make extensive use of their voice. They are flat-bodied animals quite capable of climbing and roaming on very straight walls smoothly with the help of their specially constructed feet, the fingers and toes of which often bear broad adhesive lamellae on the underside. Another peculiarity with the Geckos is that they may break off their tail suddenly by muscular contraction at the event of their catch. This cast-off part regenerates in the animal but it can not be discarded again in the same fashion as it would be in that case, supported by an unsegmented rod of cartilage.

Among the Geckos of these islands remarkable is the Asian Tokay, *Gekko gecko* which produces a very characteristic sound "tuk-kaa" (from which its popular name Tokay is coined) repeating several times distinctly. It is greyish in colour with numerous brick-red or whitish-grey spots all over and sometimes with 7-8 narrow transverse series of white spots. This gecko is very courageous.

Although it feeds chiefly on insects still it can prey house-geckos, small birds and mice. Its jaws are extremely powerful and the prey once seized is not easily given up.

There is also the Smith's Gecko, *Gekko smithi* which is more common than the previous one and is frequently seen in the jungles of Andaman Islands, upon the large trees. It is rarely found in houses. Its call consists of 'tuk-tuk' repeating 5 to 6 times. Sometimes local people treat this call as a token of good luck. It is brown or brownish grey with darker markings particularly near the back of the head. Its food habit is more or less same as that of the Asian Tokay.

The common House-gecko of these islands is *Hemidactylus frenatus*. It is mainly insectivorous often found on the walls of almost every house.

The Curltailed Gecko, *Cyrtodactylus rubidus* is very common in these islands. It is an endemic species and is found in the forests. It is light brown or grey-brown in colour with dark markings often united to form irregular transverse bars. It moves on trees as well as ground and holds its tail stiffly up when running.

The Forest Day Gecko, *Cnemaspis kandiana* also frequents the forests of these islands. It possesses brown colour, with transversely arranged lighter and darker variegations.

Besides, there is the Spotted Gecko, *Gehyra mutilata* found in the forests of both the Andamans and the Nicobars. It is a pale greyish or buff coloured gecko often with light spots ringed with dark ones. It can change its colour from light to dark and has the preference for sweet fermenting substances for which it is also called "sugar lizard"

The Stripeheaded Gecko, *Lepidodactylus lugubris* has been recorded from the Andamans by Boulenger (quoted by Smith, 1943). But there is no subsequent record of this gecko from these islands.

The Flying Gecko, *Ptychozoon kuhli* is available in the Nicobars particularly in Car Nicobar, Camorta and Nancowry Islands. Whitakar (1978) found this lizard in South Andaman also. This lizard can be distinguished by the presence of a fold of skin on either side of the trunk and a narrower border of skin running along the head and the thigh continuing on the toes and the tail. When at rest, this gecko can camouflage itself perfectly with its surroundings by pressing down its cutaneous fold firmly. Again, these folds of skin can act as parachute when this lizard jumps or falls.

The Andaman Day Gecko, *Phelsuma andamanense* is endemic in both the Andamans and the Nicobars. It is a green-coloured gecko, with red or orange spots and is very common in Andaman Islands. This gecko, being green in colour, has the tendency to stay in the foliage of trees where it can easily camouflage itself with the surroundings. It is mainly an arboreal form although it is sometimes seen in houses. Occurrence of this gecko in these islands is undoubtedly most interesting in view of the fact that its relatives are not Oriental but Ethiopian. Distribution of *Phelsuma*, apart from the Andamans and Nicobars, is Madagascar, the Comoro, Seychelles and Mascarene Islands.

Besides, the following two species of Gecko are also found in these islands, that too, in the Nicobars

- 1 *Hemiphyllodactylus typus typus*. It is brown in colour, having darker spots and dark streaks along the sides of the head on to the shoulder. It is found in the forests.
2. *Cosymbotus platyurus*. It is grey or greyish brown, with darker spots. It may be seen in gardens and even in houses.

Agamids

Agamids are strongly built, with long legs, a rather large head and a long tail. These lizards can not usually break off their tail like Geckos. They almost always possess a keel or ridge on their body and tail.

In Southeastern Asia there are large number of Agamids which live on the ground, in the trees and even in the water of tropical rain forests. But all agamids of these islands are tree-dwellers representing two genera only, namely, *Goniocephalus* and *Calotes*.

One species of *Goniocephalus*, namely, *G. subcristatus* is available in these islands. It is endemic and popularly known as the Green Forest Lizard. It is brownish or greenish in colour with more or less triangular head and sharply slanting forehead. It is very common in the jungles of both the Andamans and the Nicobars, very agile and can leap from one tree to another with great rapidity.

Calotes are popularly called garden lizards and sometimes called variable lizards because of their ability to change the colour of their body rapidly. They are also popularly called blood-suckers as their head becomes magnificently scarlet particularly during territorial and courtship behaviour.

Seven species of *Calotes* are known from these islands of which 2 species, namely, the Andaman Garden Lizard, *Calotes andamanensis* and the Tiwari's Garden Lizard, *C. danieli* are endemic in the Andamans and the Nicobars respectively.

The following 4 species of garden lizards of these islands are green in colour and are visually distinguishable from each other by various spots and markings on their body and tail

1. Green Garden Lizard, *C. cristatellus*. It may be uniformly green or may possess reddish or chocolate markings on the body. It is found in the Nicobars.
2. Spotted Garden Lizard, *C. jubatus*. It has the large yellowish or reddish spots or elongated markings or vertical stripes, usually at the anterior part of the body. It is also seen in the Nicobars.
3. Garden Lizard, *C. calotes*. It is bright green in colour often with 5 or 6 dark green or whitish transverse stripes usually continued upto the tail. It is recorded from the Nicobars.
4. Andaman Garden Lizard, *C. andamanensis*. It possesses a whitish spot on the body and dark annuli on the tail. This species was described by Boulenger in 1891 from a single male specimen. Since then no subsequent collection of this species has been made.

Besides, the Whitelipped Garden Lizard, *C. mystaceus* is available here. It is the only species of garden lizard which occurs both in the Andamans and the Nicobars. It is brownish grey or olivaceous with indistinct darker spots and markings.

Of the remaining, the Common Garden Lizard, *C. versicolor* is frequently seen in bushes, hedges and open jungles of the Andamans. The Tiwari's Garden Lizard, *C. danieli* has been described from Great Nicobar Island comparatively recently (Tiwari and Biswas, 1973).

Skinks

These lizards have cylindrical body, with head ended in a sharp snout and a tail pointed at the tip. As mentioned earlier, there are 11 species of skinks available in these islands. Among these, the genus *Mabuya* is the most common and represented by the following 5 species

- 1 Tytler's Skink, *Mabuya tytleri*. It is the common skink of the Andamans having brown and bronzy colour on the upper side sometimes with indistinct spots and greenish white colour on the under side. It is endemic in Andaman Islands.
2. Andaman Skink, *M. andamanensis*. It is the only mabuyan species which is found in both the Andamans and the Nicobars but it is common in the Andamans. It is also endemic in these islands. This skink is brown in colour and possesses two series of black spots, one on either side of the vertebral line, on the neck and anterior half of the back.
3. Lined Skink, *M. multifasciata*. It is brown in colour with lemon yellow flank and recorded so far from the Nicobars only.
4. Brown Skink, *M. rugifera*. It is very dark brown skink, having five or seven greenish white longitudinal lines. This skink is recorded so far from the Nicobars.
5. The skink, *Mabuya rudis*. It is also found in the Nicobars.

Mention may be made here that all the mabuyas are ground dwellers and are very active when the sun is shining. Another kind of similar looking skinks is also found in these islands along with *Mabuya*. These skinks belong to the genus *Sphenomorphus* whose basic colour is brown, grey-brown or olive-brown. Two species of *Sphenomorphus*, namely, *S. maculatum* and *S. quadrivittatum* have been recorded from these islands, of which the first one is found in both the Andamans and the Nicobars while the second one is known to occur in the Nicobars only. These skinks are restricted to the forests only and live in litter on the ground. They are lizard-like in shape with long and thick tail and possess well developed limbs with strong claws. Their snout is short and body is patterned with cross bars.

Though *Mabuya* and *Sphenomorphus* are sometimes seen side by side in these islands still there are some major differences between them in their habits. The *Mabuya* are active only when the sun shines whereas the *Sphenomorphus* are active in the early hour of the morning and after sun set. The *Sphenomorphus* are restricted to the forests whereas the *Mabuya* are found in diversified habitats and even approach water when chased. Moreover, the *Mabuya* move very quickly whereas the *Sphenomorphus* are not quick in their movements.

The Whitestriped Skink, *Scincella macrotympanum* is another lizard-like skink known so far by a single specimen obtained on a sandy beach of Macpherson's Strait, South Andaman. It is an

endemic species which has smooth scales, well developed limbs and a long tail.

The Blackstriped Skink, *Riopa bowringi* has also been recorded from the Andamans. It inhabits open plains and possesses thick tail and supra-nasal shields over the nose.

The Tree Skinks of these islands are *Dasia olivacea* and *D. nicobarensis*. The first one is found in both the Andamans and the Nicobars and the second one is endemic in Nicobar Islands. These skinks are lizard-like with long, gradually tapering tail and a scaly lower eye-lid.

Burrowing Lizards (Dibamids)

One species of the Burrowing Lizard, *Dibamas novaeguineae* is known from these islands, that too, from the Nicobars only. This is a worm-like lizard without any limb and with reduced eyes. Its distribution is extended from the Nicobars to New Guinea. It is a burrower and lives in the humus of the tropical forests. It is purplish brown in colour above and paler and quite capable of discarding its tail.

AMPHIBIA

Amphibians of these islands have not been properly explored. In all, 9 species (7 of frogs and 2 of toads) are reported from this region. Among them the Indian toad, *Bufo melanostictus* and the Paddy Frog, *Rana limnocharis* are common in both the Andamans and the Nicobars.

Frogs

The following are the aquatic frogs (genus *Rana*) known from these islands

1. Brown Frog, *R. dorie*. It is reported from North Andaman only.
2. Paddy Frog, *R. limnocharis*. It is a common frog of these islands and represented by 2 subspecies, namely, *R. limnocharis limnocharis* and *R. limnocharis andamanensis*. The first one is found in both the Andamans and the Nicobars while the second one is restricted to Andaman Islands only.
3. Nicobar Frog, *R. nicobarensis*. It is found in Nicobar Islands.

4. Saltwater Frog, *R. cancrivora*. It is reported from the mangrove swamps at Corbyn's Cove (Port Blair) and Havelock Island. This frog is not reported so far from Indian mainland.

Only 2 species of land frogs, namely, *Microhyla inornata* and *M. chakrapani* are reported from the Andamans only, the last one being endemic in Middle Andaman. Very recently, one species of tree frog, *Rhacophorus leucomystax*, has been collected from Great Nicobar Island.

Toads

As mentioned earlier, the Indian Toad, *Bufo melanostictus* is available throughout these islands. Recently another toad, *Bufo camortensis* has been described from the specimens collected from Camorta Island (Mansukhani and Sarkar, 1980). Subsequently this species has also been found to occur in Great Nicobar

FISHES

Marine Fish

The Andaman and Nicobar group of Islands are very rich in its ichthyofauna. Around 600 species of fishes are known from this region, of which only a few are considered to be commercially important. The following sea-fishes are fairly common in the commercial catches in Andaman waters

- 1 Shark and Rays (*Carcharhinus* spp., *Sphyrna blochii*, *Rhynchobatus djeddensis*)
2. Croackers (like *Dendrophysa russelli* and *Pennahia macrophthalmus*)
3. Sweepers (*Pempheris moluca* and *P. vanicolensis*)
4. Sardines (*Sardinella* spp.)
5. Anchovies (*Stolephorus* spp., *Thrissina baelama*, *Thryssa* spp.)
6. Monocle Bream (*Scolopis ciliatus*)
- 7 Seer fishes (*Scomberomorus commersoni*, *S. guttatus*)
8. Mackerel (*Rastrelliger brachysoma*)
9. Tuna (*Thunnus tonggol*)
10. Striped Marlin (*Tetrapterus audax*)
- 11 Pony Fishes (*Leiognathus daura*, *L. fasciatus*)
12. Mulletts (*Mugil cephalus*, *Liza* spp., *Rhinomugil corsula*)
13. Snappers (*Lutjanus* spp., particularly *L. kasmira*)
14. Eels (*Anguilla bengalensis*, *Lycodontis* spp.)
15. Silverside (*Atherinomorus lacunosus*)
16. Sea perches (*Epinephelus* spp., *Cephalopholis* spp.)
- 17 Barracudas (*Sphyraena* spp.)

In addition to these, there are several fishes which contribute a minor fishery in these islands. Some of these are

- 1 Pigface Breams/Emperors (*Lethrinus* spp.)
2. Scad (*Atule mate*)
3. Jacks (*Caranx sexfasciatus*, *Selar boops*, *Ulua mentalis*, *Megalaspis cordyla*)
4. Flounder (*Pseudorhombus dupliciocellatus*)
5. Marbled Moray (*Uropterygius marmoratus*)

Of the pelagic fishes, the sardines, mackerels and tuna constitute about 13.5, 10 and 3.1 per cent respectively of the total catch in these islands and are considered to be economic variety. Bulk of the demersal fish catches comprise of Sea-perches. Of course, demersal fishes do not fetch a good price from the market. The high priced fishes of this area include Breams, Barracudas, Jacks, Mulletts and Seer Fishes.

Although about 2000 km of coast line is available for all the islands grouped together, the total fish landing here is considerably low (1800 MT during 1982-83). This may be due to the narrow continental shelf with rocky and coral bottom which does not facilitate the operation of gears like the trawl and the purse seine. Moreover, there is no traditional fishermen community in these islands as we have on the mainland.

Freshwater Fish

Natural tanks and ponds are rare in these islands. However, there are some fairly large freshwater reservoirs, tanks and ponds which have been dug up during the penal settlement and subsequent developmental activities of these islands. Of course, there are many freshwater streams in this territory. In hilly areas these streams turn to mountain rapids. These are insignificant and very shallow except during the rainy season.

About a dozen of species of freshwater fishes inhabit the ponds and tanks of these islands, all of which have been introduced here through the human agency. These fishes include the following, which are also very common in the Indian mainland

- 1 Carps (like *Labeo rohita*, *Catla catla*, *Cirrhina mrigala*, *Rasbora daniconius*, *Puntius sophore*)

2. Murrels (*Channa punctatus*, *C. orientalis*, *C. gachua*, *C. stewarti*)
3. Catfish (*Heteropneustes fossilis*)
4. Anabas (*Anabas testudineus*)
5. Tilapia (*Orreochromis mossambica*)
6. Freshwater eel (*Anguilla bicolor*)

Stream fishes of these islands are very interesting. These are not freshwater fauna at all, but consist of adaptable marine species. According to Annandale and Hora (1925), the fluviatile fish fauna of the Andamans has been derived from the surrounding sea rather than from any other territory.

The following 11 species of stream fishes are recorded so far from these islands

Andamia heteroptera, *Sicyopterus microcephalus*, *Ophiocara porocephalus*, *Eleotris fusca*, *Aplocheilus panchax*, *Oryzias melanostigma*, *Doryichthys insularis*, *Glossogobius giuris*, *Raogobius andamanensis*, *Pseudogobiopsis romeri*, *Awaous grammepomus*.

Among these, *Andamia heteroptera* and *Doryichthys insularis* are endemic and *Raogobius andamanensis* has an uncertain taxonomic status. Further, there are some Eel Catfish namely, *Plotosus canius* and *P. lineatus* and the Sea Catfish, *Ketengus typus* which are found in muddy estuaries in considerable number

Perennial rivers are very rare in these islands. But in Great Nicobar there are five such rivers, namely, the Galathea, the Alexandra the Dogmar, the Amrit Kaur and the Jubilee. Fish fauna of these rivers are not properly explored. The following species of fish are known so far from the rivers of Great Nicobar (Menon and Talwar, 1972)

Galathea rivery	<i>Salarius fuscus</i> <i>Callogobius hasselti</i> <i>Chelonodon fluviatilis</i>
Alexandra river	<i>Periophthalmus koelreuteri</i> <i>Platycephalus indicus</i>
Dogmar river	<i>Bombonia spicifer</i>

Oryzias melanostigma
Liza macrolepis
Liza melinoptera
Ambassis gymnocephalus
Gazza minuta
Gerres oblonga
Butis gymnopus
Bunaka gyrinoides
Electris andamanensis
Eleotris fusca
Ophiocara aporos
Kraemicus smithi
Pseudogobiopsis romeri
Quisquilius eugenius

Jubilee river

Velamugil cunnesius
Ambassis commersoni
Leiognathus equulus
Monodactylus argenteus

These are mostly estuarine fishes. Among these *Kraemicus smithi* is endemic and found in a creek of the Dogmar river from clear shallow water by disturbing the bottom mud. The goboid fish, *Ophiocara aporos* has also been reported from the freshwater pools of Great Nicobar (Menon and Talwar, *op. cit.*).

SNAILS, SLUGS AND MUSSELS

Snails, slugs and mussels of these islands are not properly explored. Even then, around 140 species belonging to these groups have been reported so far from these islands, a great percentage of which are endemic.

Land snails

Around 85 species of land snails are known from these islands, of which 75 are endemic. Among the snails, the Giant African Snail, *Achatina fulica fulica* is very abundant and needs separate discussion in view of its severe pestiferous nature.

Giant African Snail

The Giant African Snail, *Achatina fulica fulica* is a big-sized land snail and has the status of a serious international pest affecting large number of important crops. In 1847 a British Conchologist, W. H. Benson brought this snail from Mauritius and introduced it in India at the Eden Garden, Calcutta. It is said to have been introduced

in Andaman Islands by the Japanese during the World War II for the purpose of utilising it as food to supplement their protein requirement during the war years.

This snail has now spreaded over to North, Middle, South and Little Andamans as well as Car Nicobar, Katchal, Camorta, Nancowry and Great Nicobar. It causes considerable damage to various crops of these islands.

This snail is bisexual and a prolific breeder. It breeds once a year during the rainy season and lays 50-200 eggs in one or two batches. These eggs take about a week for hatching. Any snail of 10-12 months age is capable of breeding.

The snail is very active in rainy season and comes out of its hideout after dusk. During the day time it generally takes shelter under stones, crevices or heaps of dry leaves or in bushes. But during the peak period of rains it is often found clinging to the stems in large aggregates even during the day time.

Various measures (mechanical, chemical and biological) have been adopted to control these snails in these islands. But all such measures are found to be quite unsuccessful. Metaldehyde pellets (5 per cent) have been found deadly to this snail. But this chemical is practically useless here as it gets washed out during rains before it can act on the snail. For its biological control 2 exotic species of predatory snails, namely, *Goanaxis quadrilateris* and *Euglandia rosea* were imported from Hawaii and introduced in these islands. An Indian carnivorous snail, *Gulella bicolor*, a predatory milliped, *Orthomorpha* sp. and 4 species of hermit crabs belonging to the genus *Coenobita* were also tried for the snail control. But all these efforts were found to be a complete failure. Some good results were, however, achieved by destroying its aestivating pockets (places where this snail takes shelter during the summer period) in the summer months of March and April.

The other pestiferous snails of these islands are *Macrochlamys indica* and *Opeas gracile*, of which the first one seems to be very common in both the Andaman and Nicobar Islands. However, these snails cause very negligible damage to the crops and garden plants of these islands.

Slugs

Four species of slugs, namely, *Laevicaulis alte*, *Vaginulus giganteus*, *Hyalimax andamanica* and *H. reinhardti* are found in these islands. While the first time one is found in tropical and subtropical

regions of the world including the mainland India, the other three are restricted only to the Andamans and the Nicobars.

The Andaman Slug, *Hyalimax andamanica* is found to occur only in Andaman Islands. Its body is pale green in colour with a yellow mantle and upper parts of its neck are marked with alternate of torquise-blue and chocolate colour. During rainy season this slug is frequently seen on the underside of the green, thick leaves of Calderon and various other plants.

The Nicobar Slug, *H. reinhardti* is endemic in Nicobar islands. It resembles the Andaman Slug in external appearance except that it is considerably larger (45 mm in length *versus* 20 mm length of *H. andamanica*).

The slug, *Vaginulus giganteus* is endemic in Andaman islands. This species has been reported only once (Godwin-Austen, 1895) from the Andamans and no subsequent collection of this slug is available. It is elongate in form and grey above, with dark mottlings and possesses a narrow pale line down the centre of the back. The identity of this slug needs further confirmation because according to the present state of knowledge on this group, members of the genus *Vaginulus* do not occur in this region.

Freshwater Snails and Mussels

Fortyfive species of freshwater snails and 6 species of freshwater mussels have been recorded so far from these islands (Subba Rao, Das and Mitra, 1980), of which 12 are endemic. Among the freshwater snails, neritids (9 species) and thiarids (25 species) are very common and found in streams. Interestingly, some common freshwater gastropods of the mainland India, namely, *Bellamya*, *Pila*, and *Lymnaea* are very rare in these islands. Snails belonging to the genus *Paludomus* which are often seen in hill streams of Indian mainland are not found in similar habitat of these islands. Common Freshwater Mussels (e.g. *Lamellidens*, *Parreysia*, etc.) and the Pea Clams (*Pisidium* and *Sphaerium*) which are very common in India and cosmopolitan in distribution are conspicuously absent from these islands. Occurrence of the freshwater bivalves belonging to the genus *Batissa* in both the Andamans and the Nicobars is significant because this mollusc is not found in the mainland India but is available in Malay Archipelago and other adjacent islands.

INSECTS

Except the information widely scattered over 48 volumes of the Fauna of British India series on insects there is not much consolidated

works published in subsequent years dealing with the insect fauna of these islands. Compilation of published literature as well as personal communication with the entomologists of the Zoological Survey of India reveals that around 1500 species of insects have been recorded so far from these islands, although considering the geographical location and remarkable ecological diversities, expected number of species seems to be much more. Out of the said recorded species of insects, about 50 per cent are beetles (Coleoptera), 30 per cent are butterflies and moths (Lepidoptera) and the rest belong to other groups.

Termites (Isoptera) of these islands are comparatively well known. Roonwal and Bose (1970), Bose (1980) and Maiti (personal communication) have been able to record 40 species of termites from these islands. Sen (1980), Ghosh (1980) and Chhotani *et. al.* (1983) have reported the occurrence of 29 species of thrips (Thysanoptera), 11 species of neuropteran insects and 34 species of dragon flies (Odonata) respectively from these islands. Moreover, 82 species of Diptera including 28 species of mosquitoes and 7 species of houseflies, 75 species of Orthoptera including 29 species of crickets and 46 species of grasshoppers and around 60 species of Hymenoptera (ants, wasps and bees) are known from these islands.

SPIDERS AND SCORPIONS

Fiftyeight species of spiders have been reported so far from these islands, of which 26 are endemic (Tikader, 1977)

Scorpions appear to be rare in these islands, represented by 5 species only. Pseudo-scorpions, on the other hand, are often found under the bark of felled logs on the forest floor during the rainy season. Unfortunately, there is no published work dealing with the identity of these animals from these islands.

CENTIPEDES AND MILLIPEDES

Seventeen species of centipedes are known so far from these islands. But people of this place are quite afraid of a particular species of centipede, namely, *Scolopendra subspinipes dehaani* which is popularly known as *Kankhajura*. This creature usually grows upto 25-30 cm in length and is found to be plentiful during the rainy season particularly in wooden houses surrounded by unkept gardens and tall grasses. Bite of this centipede is very painful. This pain usually subsides after 12 hours causing severe swelling. It takes 2-3 days for complete recovery.

Five species of millipedes have been found so far from these islands, of which most common is *Anoplodesmus tanjoricus*. During

the rainy season, this millipede is very common and active under the shade of big trees and under decaying fallen leaves. Besides, two other species, namely, *Desmoxytes planatus* and *Trigonulus corallinus* frequent Port Blair

EARTHWORMS AND LEECHES

Earthworm fauna of these islands appear to be rich so far as the number of species is concerned. Twentyone species have been reported so far from these islands, of which 13 are recorded from the Andamans, 3 from the Nicobars and 5 from both the groups of islands.

Only 2 species of leeches, namely, *Haemadipsa sylvestris* and *H. zeylanica* are found to occur in these islands. These are seen in plenty on the forest floor during the rainy season and after heavy shower in other seasons.

SEA-SHORE ANIMALS

Sea-shore is a unique habitat in the sense that along one border it merges gradually into dry land and at the other it passes down to the ocean bed. The animals living on the sea-shore can broadly be divided into following four main categories

1. Animals which are normally never found anywhere except between the tide marks , e.g., many sea-shells, sponges, barnacles, etc.
2. Animals which are mostly found in shallow water just beyond the low tide mark but have extended their range of distribution on the beach , e.g., some sea-shells, crabs, star fishes, sea-urchins, sea-cucumbers, etc.
3. Animals which invade shore during the high tide , e.g., prawns, shrimps, fishes, etc.
4. Animals which invade shore during the low tide, e.g., some birds, insects, etc.

Among these, animals of the first category are the true beach species as they spend whole of their lives in intertidal zone excepting a very brief period when some of them may float or swim in the sea as larvae.

Detail discussion of all the categories mentioned above is beyond the scope of this book. In the present context our discussion is restricted to the animals of the first and the second categories because

people visiting sea-beaches and collecting animals during the low tide would generally find those forms.

Animals living between the tide marks are exposed to periodical alternation between submergence and emergence. That means, they are to lead a partly terrestrial (when emerged) and partly aquatic life (when submerged) each day. They, therefore, exhibit most varied possible series of adaptations to overcome these stringent circumstances.

The common macro-animals of the sea-beaches of these islands can be grouped under a few broad categories, namely, corals, polychaetes, sea-shells, prawns and shrimps, crabs and echinoderms (like star fishes, sea-cucumbers, sea-urchins, brittle star, etc).

In these islands beaches are mostly rocky and occasionally sandy. Besides, there are also muddy substratum along the creeks and mangrove swamps. Above all, there are corals which occur extensively in these islands forming fringing reefs. These reefs are very important marine habitat sustaining innumerable life forms. Of course, in a single stretch of coast one may likely to meet a wide variety of types of shores the rock, sand, mixed sand and rock, pebble, shingle and near the mouth of creek sandy mud and pure mud.

Distribution of shore animals are largely dependant on the nature of the beach. So, different types of beach of these islands along with their animal communities are discussed below under separate sub-heads.

ROCKY BEACH

On the rock, beach-animals are found in large numbers and varieties because such beach offers diversified micro-habitats well suited for different kinds of animals. Some animals may be attached conveniently with the substratum, others may stay in temporary pools between the rocks and some others may find their place in the crevices or bore into the rocks. For these reasons, one can expect different kinds of sea-shells, barnacles, crabs, shrimps, sea-urchins, sea-cucumbers, brittle-stars, etc., on the rocky beach.

The Acorn Barnacle (*Balanus* sp.) and, sometimes, limpets and oysters are the most common and most numerous animals of the rocky shore. The barnacles are permanently attached on the wall of the rock and found between MSL (Mean Sea Level) and MLLW (Mean Lower Low Water).

Among the limpets, *Cellana* sp. and *Patella* sp. are found to be common in these islands. In addition, there are Keyhole Limpet

(*Fissurella* sp. and *Diadora* sp.) available in both the Andamans and the Nicobars. The limpets, as a whole, hang on the wall of the rock by the suction of their foot.

The common oyster of these islands is *Saccostrea cucullata* which, just like barnacle, is permanently attached on the rocky or any other hard substratum. The same is also the case with other oysters, namely, *Crassostrea gryphoides* and *C. madrasensis*. The left valve of all the oysters is normally cemented to the solid substratum at the end of their larval life. The left shell valve of *Crassostrea* forms a deep bowl whereas that of *Saccostrea* is almost flat.

Usually one species of periwinkle, namely *Littorina undulata* is found on the rocky beach of these islands. These are tiny dark brown snails, which often cluster in large numbers in rock-crevices little above the high-tide marks. These snails also extend as low as half-tide level. Another species of periwinkle, *L. scabra* may also be seen on the shore-rocks of such places where mangroves are found to occur (e.g. Chiriatapu, Wandoor, etc.).

Chitons are also the common intertidal molluscs of the rocky beach occupying generally the upper littoral zone and adhering firmly to the hard substratum by means of their sucker-like foot. On the dorsal surface of the chiton there is a calcareous shell, made up of no fewer than eight transversely elongated pieces. The common chitons of these islands are *Chiton granoradiatus* and *Ischnochiton* spp. The big-sized 'Thorny Chiton', *Acanthopleura spiniger* is also very common in both the Andamans and the Nicobars. In the same zone, sometimes little below, there are considerable number of nerite shells of different species, moving very slowly on the rocky wall in small groups.

The rocks also give anchorage to innumerable hosts of mussel like Hammer Oyster (*Isognomon* sp.), Date Shell (*Lithophaga* sp.), Wing Oyster (*Avicula* sp.), Thorny Oyster (*Spondylus* sp.), etc.

Top Shell (*Trochus* sp.) and Turban Shell (*Turbo* sp.) are also common rocky forms along with Painted Top (*Calliostoma* sp.) and Dog Whelk (*Nucula* sp.). Some of these Top Shells and Turban Shells are in considerable demand for commercial uses. For example, Common Top Shell, *Trochus niloticus* and Green Turban, *Turbo brunneus* are greatly used for shell handicrafts. *Trochus* is triangular in shape and heavy at the bottom and is very commonly available in Port Blair Market in the form of table lamps. It is also used in the manufacture of button. The turban shell is costliest in the market of Port Blair because of its attractive quality and suitability for making costume jewellery. Other common big-sized sea shells of rocky



Typical Rocky beach

Coral Reef of Andaman Islands





Typical Stag-horn coral reef

Coral Reef of Nicobar Islands





Cowries in natural habitat

Brittle star in coralline beach





Giant Clam, *Tridacna maxima*

Coconut fringed sandy beach





Robber Crab, *Birgus latro*



Some sea-shore animals like octopus, sea-urchin and sea-cucumber used by Nicobarese as food

Galathea river mouth fringed with mangrove



beach, available in Port Blair market are King Shell (*Cassis cornuta*), Queen Shell (*Cassis rufa*), Murex Shell (*Chicoreus ramosus*), Spider Conch (*Lambis lambis*), Scorpion Conch (*Lambis scorpius*), Sacred Chank (*Xancus pyrum*), etc. Mention may be made here that dead shells of Paper Nautilus, *Argonauta bottgeri* is frequently found on the sea beaches of these islands. This mollusc is a deep sea form but is drifted to shore. Nautilus shell is very light and fragile and has a considerable utility in cottage industry.

As pointed earlier, large varieties of shells can be picked up from the rocky beach of these islands during ebb tide, of which the following are comparatively common

Rock Shells (*Thais* spp.), Frog Shells (*Bursa* spp.), Drup Shells (*Drupa* spp.), Cowries, Olive Shells (*Oliva* spp.), Cone Shells (*Conus* spp.), Moon Shells (*Natica* spp.), etc.

Moreover, Ark Shells (*Anadara* spp., *Barbatia* spp., etc.), Cardite Shells (*Cardita* spp.), etc., can easily be collected from the rock crevices.

Large number of crabs of diversified groups occur in rocky habitat. Land crabs like *Cardiosoma hirtipes*, *C. carnifex*, *Epigrapsus politus* and *Pelocarcinus humei* are frequently seen here. Ghost Crabs (*Ocypode* sp.), Grapsid Crab (*Sesarma* spp.), etc., also prefer rocky beach.

Sea urchins, namely, *Echinometra mathei*, *Echinostrephus molaris*, *Stomopneustes varioaris* are found in the rocky beach of both Andaman and Nicobar Islands.

During the low tide many polychaetes may also be seen on the rocky beach. In intertidal zone, polychaetes belonging to *Iphione muricata*, *Lepidonotus hedleyi*, etc., are sometimes found on the surface of the rock. Some tubiferous polychaetes, like, *Sabella fusca* and *Hypsiconus phaeotaenia* occur in this habitat. Both the species of polychaete live in tough tubes encrusted with mud and sand granules.

CORAL REEF

Corals, particularly stony corals, are very common in these islands and are represented by about 80 species (Reddiah, 1977). These animals live in a colony, secrete skeleton of limestone (calcium carbonate) and form fringing reefs in both the Andaman and the Nicobar Islands.

When seen from a boat through the clear sea water on a bright sunny day, beautiful living corals of various forms and size can be clearly visible, producing a most fascinating and startling effect with their emerald green, pale yellow, pink or even white terminal branchlets. In the same habitat there are numerous bright coloured fishes; often in little shoals, swim in and out of every crevice of the corals, with holothurians, prawns and crabs peeping through all the corners of the corals or crawling on them. Of course, ecology of this habitat has been gradually becoming very precarious due to human activities including dredging for calcareous sands and cutting of mangroves.

Reef edges of Andaman Islands contain mostly the stony corals of the genera *Acropora*, *Pocillopora*, *Favia* and *Porites*. Besides, there are also alcyonarian corals, like, *Sarcophytum*, *Lobophytum*, *Sclerophytum*, etc., and gorgonids, like, *Isis*, *Melitheia* and *Chalcogorgia* occurring in shallow shoals and at reef edges. On the leeward shores (shores where wind and wave action is very less) Sea Cups (*Phyllospongia calciformes*) are found to grow. Most common reef-building corals of Nicobar Islands are *Porites*, *Favia*, *Acropora*, *Pocillopora*, *Heliopora*, *Tubipora* and *Montipora*. In addition, alcyonarian and gorgonacean corals also occur there.

These corals grow in the direction of the prevailing wind (as found on most of the islands on the windward side) as well as in the channels which are usually protected from the winds due to presence of islands on both the sides (e.g., Camorta-Nancowry Complex and the Channels of South Andaman). Moreover, in some places mangroves provide a sheltered environment for the corals from severe wave action and from abrupt deposition of land drawn sediment. It is generally found that wave exposed regions of the outer edge of reef contain corals of massive forms or branched forms, in which branches are very thick and stumpy. But, in sheltered water more foliate and delicately branched forms become abundant.

The most abundant reef-building corals of these islands are *Acropora*. They form an almost continuous carpet of corals along the coast line of many of the islands. These are branching corals, having diversified shape and size and are represented by more than 30 species (Reddiah, 1977). These corals, where exposed at low spring tide, do not attain large size. But in deeper water outside the reef they form branches of about 100—120 cm in height, with main stem nearly 30 cm in diameter

Other branching corals of these islands are *Psammocora*, *Pocillopora* and *Montipora*, of which the first one is found to be common in the Nicobar. *Pocillopora*, on the other hand, are abundant on both the Andamans and the Nicobars. These are colonial corals

forming profusely ramified shrubby and bushy growths. The surface of their branches is very rough and in many species these branches are raised into a series of little mounds. *Montipora* is found to be abundant in Nicobar Islands. These corals are also important reef builders and display various forms of growth, like branching, encrusting, massive, foliate, etc.

The Perforate Coral, *Favia* and the Mushroom Coral, *Fungia* are also abundant in Nicobar Islands. The first one is usually hemispherical or almost spherical in shape without lobes or branches but sometimes encrusting in habit. The Mushroom Coral resembles the inverted disc of a mushroom and lies free on the reef in its adult condition so that it can be picked up without forcibly detaching it from any basal support. Another coral with massive forms is *Porites* which is common in both the Andamans and the Nicobars. The massive forms of Perforate Coral and Mushroom Coral usually grow in sheltered environment, attaining the diameter as much as 5.5 metre and 2 metre respectively.

The Coral reefs of these islands sustain large number and varieties of marine animals, of which crabs, molluscs, echinoderms and fishes are very frequently seen.

More than a dozen of genera of crabs inhabit coral reefs of these islands. Among these, xanthid crabs, particularly, *Epixanthus frontalis* and *E. dentatus* are very common. These are very small crabs, having 2-3 cm in width. Still smaller xanthid crabs belonging to the genera *Trapezia*, *Teralia*, *Quadrella*, *Actaea*, etc., and the Hairy crab of the genera *Chlorodopsis*, *Pilumnus*, *Actumnus*, etc., also frequent this habitat.

Among the echinoderms, Sea-cucumber seems to be common in the coral reef. *Actinopyga mauritiana*, *Holothuria atra* and *H. scabra* are found on coral bed whereas *H. rigida*, *H. leucospilota*, *H. impatiens* and *Stichopus chloronotus* are seen almost common amongst coral rocks and in sandy portion of the coral reef. Star fishes, like *Linckia laevigata* and *Acanthaster planci* are found on coral bed. Brittlestars, namely, *Ophiocoma scolopendrina*, *Macrophiiothrix longipeda* and *Ophiolepis cincta* inhabit coralline and rocky shores.

Amongst the molluscs of the coral reef, the Giant Clam, *Tridacna maxima* is very conspicuous. This clam is very big and massive and sometimes weighs up to 100 kg or more. It may grow up to 100 cm in length and 70 cm in height, having a gape of about 50 cm. At extreme low tide its boulder-like mass stands up fully exposed, planted on the substratum where two valves of this massive shell are joined

by a hinge. The clam gapes to the full either when it is covered with one metre or less of water or when it is fully exposed to the direct sun. Another species of *Tridacna*, namely, *T. crocea* is also very common in the coral reefs of these islands. This smaller form is found in most of the boulders of *Favia* and *Porites* in the Nicobars as well as Ritchie's Archipelago (Reddiah, 1977). Many other molluscan species belonging to the genera *Turbo*, *Trochus*, *Lambis*, *Conus*, *Cypraea*, etc., also occur at the reef edges and flats. A wide range of bivalves, particularly of the genera *Lithophaga*, *Barbatia*, *Anadara*, etc., either penetrate corals or make use of the pre-existing burrows or cavities of the corals.

Most of the borers avoid living corals and prefer dead ones. Besides bivalves, there are some sponges, cirripedes, etc., which bore into the dead corals or coralline rocks. Some polychaetes, namely, *Lepidonotus* spp., *Psammolyce zeylanica*, *Eurythoe complanata* and *Eunice afra* are found in dead corals in the intertidal zone. There are also many other polychaetes, for example, *Noto-pygos variabilis* and *Eunice aphroditois* which are found in association with living corals even at water depths of more than 5 metre.

SANDY BEACH

Sandy beaches differ greatly in their animal content. There may be practically no fauna in the most wave-beaten sandy beaches whereas a very densely packed fauna may occur in such sandy beach where there is a perfect shelter from wave action.

Sand is very unstable. Therefore, animals can not stick to it or form permanent burrows within it. Moreover, although this substratum is very easy to burrow in, its nature prevents any direct communication being maintained with the surface since, in that case, sides of the burrow are susceptible to collapse. To overcome such difficulty some polychaetes form tubes, some mussels (e.g. *Tellina*) possess long siphons, some crustaceans (such as the Masked Crab, *Corystes*) have developed a special breathing tube to push the same above the surface of the sand and most of the crabs have preferred to remain buried.

The uppermost beaches of the sandy shore, which are recognisable by the fairly continuous line of dried sea weeds, are inhabited mainly by the Sandhoppers (*Orchestea* sp.) and the Ghost Crab (*Ocypode* sp.). These crustaceans are scavengers, living principally on the plant and animal debris thrown up on the beach. The Sandhoppers are found in large number, occupying the uppermost drift line of the beach just below the dried sea-weeds whereas the

Ghost Crabs are found roving on the beach little below this drift line.

Other common animals of the sandy beach are the Hermit Crabs belonging to the genus *Cenobita*, which inhabit the empty shells of gastropods of diversified varieties preferably periwinkles, cerithids, neritids, whelks, etc.

Amongst the Hermit Crabs of these islands most interesting is *Birgus latro* which is popularly known as the Robber Crab. It is the world's largest land crab and is found in plenty in South Sentinel Island. Earlier it has been reported from Great Nicobar Island also (Daniel and Premkumar, 1968). In South Sentinel Island this crab is deep blue in colour and both diurnal and nocturnal in habits whereas, this crab in other regions of Pacific and Indian Oceans is predominantly yellowish or orange red and nocturnal in habit. The Robber Crab can climb the coconut palm with ease. Davis and Altevogt (1976) found that 'an adult crab can lift a load of about 28 kg, pull a weight of 30 kg and hang on even when one of its legs was tied to a weight of 5 kg'. There is a popular belief that this crab can easily pluck the coconut from the tree, peel off the husk and break open its shell. But this habit has never been authentically confirmed.

Little below the mid tide marks different kinds of tubiferous worms are sometimes visible. Moreover, there may be the Masked Crab (*Corystes* sp.) which remains buried completely inside the sand in a vertical position, with its antennae close together and bristles interlocking so as to form a siphon for feeding and breeding. Many prosobranch snails of the genera *Bullia* and *Pyrene* are found on the beach and bivalves, like, Cockles (*Cardium* spp.), Venus Clams (genera *Meretrix*, *Paphia*, *Dosinia*, etc.), Surf Clams (*Macra* spp.), Wedge Shells (*Donax* sp.), Tellin Shells (*Tellina* spp.), Razor Clams (*Cultellus* sp.), etc., lie hidden under sand.

Among the echinoderms *Synapta maculata*, *Synaptula recta* and *Polycheira rufescens* are the sea-cucumbers and *Archaster typeus* is the star fish usually found in the sandy beaches of these islands. Of course, the first one prefers sandy cum rocky beach, the second and the third ones are found in sandy pools at tide marks and the last one prefers sandy cum muddy beach. *S. maculata* is the longest sea-cucumber of these islands and grows upto one metre in length. When seen from a distance, it looks like a snake. Its body possesses 5 distinct longitudinal bands of two to three different colours, crossed by incomplete dark bands.

In the sandy beach crustaceans are the main marine animals which occupy upper levels whereas other fauna, namely, polychaetes, molluscs and echinoderms inhabit lower levels.

MUDDY BEACH

In these islands muddy shores and swamps are found along the creeks and sheltered bays, where a specialised plant community, the mangroves, have established themselves.

Muddy shores, unlike those of sand, are almost flat. Constituent particles of mud, particularly, if these are clay, prevent it from drying out at low tide. So, in muddy beach animals usually avoid deep burrowing when tide retreats.

Mud represents a difficult environment to its inhabitants for various reasons. The superficial softness and frequent internal denseness of the substratum make locomotion difficult over and through the mud. Finely divided particles of mud may also clog the respiratory mechanism of animals. Furthermore, significant proportion of organic matter contained in mud is readily oxidised so that all but the most superficial layer of substratum may be deprived of oxygen. Again, particularly in mangrove zone, there is often a high concentration of sulphurated hydrogen beneath the mud surface due to action of sulphur bacteria. Even then, diversified animal groups live in this habitat.

On the mangrove fringed muddy shore the Rough Periwinkle, *Littorina scabra*, is found in large number considerably above the high tide mark. Its comparatively large size with endless variety of colour-pattern makes it easily visible. It is mostly attached with mangroves upto a height of 2.5 metres above the ground level. Another gastropod, namely, *Cerithidea quadrata*, also occurs above the high tide mark, often clinging to mangrove trunks. Another periwinkle, *Littorina undulata*, also occurs in the muddy beach and usually clusters on the wooden pilings and roots of mangrove trees in the intertidal zone. This zone is often termed as *Littorina*-zone and extends upwards of Highest High Water of Spring (HHWS). Below this zone the dominant molluscs are nerites, belonging to the genera *Nerita*, *Neritina*, *Clithon* and *Pseudonerita*. Among these, *Nerita semirugosa* is often found to occupy trunks and stilt roots of mangroves upto 1.5 metre above the ground level. *Nerita articulata* is found a little below this level. Other nerite shells mostly occur on the mud surface.

Just below this *Nerita*-zone which is bounded by HHWS on the upper side and Mean Sea Level (MSL) on the lower, there are some animals which are permanently attached on any hard substratum including mangrove-trunk or root. These animals are called sedentary epibenthos which include Acorn Barnacle (*Balanus* sp.), Common Oyster (*Saccostrea cucullata*), Ark shell (*Barbatia fusca*)

and Hammer Oyster (*Isognomon ehippium*). This zone is called *Barnacle-Oyster-zone* which extends between MSL and Mean Lower Low Water (MLLW).

Below this zone of mud-flat, a large number of molluscs of diversified species are found to occur. Among these, Horn Shell (*Terebralia palustris*), Cerithid Shell (*Cerithidea* spp. and *Cerithium* spp.), Auriculids (*Auricula* sp., *Melampus* sp. *Pythia* sp.), Stenothyrids (*Stenothyra hungerfordiana*), Assiminiids (*Assimineia* spp.) are the dominant molluscs.

Most dominant and most conspicuous crabs of the muddy shore of these islands are the Fiddler Crabs, belonging to the species, *Uca lactea annulipes* and *U. dussumieri*. These crabs are abundantly found in the mangrove areas. Each adult male has one of its claws longer than its body. These crabs are very active and rush down the holes when startled. *U. lactea annulipes* prefers soil having an appreciable admixture of mud, well drained substrata and partial shade. Therefore, this species of crab usually does not occur below Mean High Water Neaps (MHWN) on mangrove shore. *U. dussumieri* on the other hand avoids vegetation cover and, consequently, prefers to occupy shore position below MHWN. The third species of Fiddler Crab, namely, *U. vocans* is also sometimes found closer to low tide level (Das, 1985)

Other common burrowing crabs of the muddy shore are *Sesarma longipes*, *S. bidens* and *S. taeniolata*. One species of Gecarcinid Crab, *Cardiosoma carnifex* is sometimes found to occupy supra-littoral zone of mangrove-fringed estuaries. This crab digs out heaps of soil, forming some sort of mound (Silas and Sankaran Kutty, 1960). Various other crabs, particularly of the genera *Mictyris*, *Dotilla*, *Ocypode*, *Grapsus*, *Metaplex*, *Thalamita*, *Epixanthus*, etc., also invade muddy shores. The Hermit Crabs belonging to the genus *Clibanarius* are common in some muddy areas of these islands. These crabs occupy gastropod shells of diversified species and size.

Polychaetes are also the common animals of the muddy shore. Among these, *Marphysa mossambica* is noteworthy in the sense that it can thrive well in highly deoxygenated soil. Other polychaetes of this habitat mainly belong to the genera *Eurythoe*, *Perinereis* and *Eunice*.

Among the echinoderms, the star-fish, *Archaster typeus* is occasionally seen on muddy cum sandy shore. On the mud flats and swamps some gobiid fish, more particularly, mud-skipper belonging to the species, *Periophthalmus vulgaris*, *P. dipus* and

Boleophthalmus boddarti are very conspicuous. These mud-skipper construct bowl-shaped burrows in the vicinity of the most seaward or creekward mangrove trees. As the tide rises, some mud-skipper (*Periophthalmus* spp.) climb up onto the trees and cling to the branches and twigs with the sucker formed by their fused pelvic fins. They climb up just in front of the advancing water and often keep the tail just under the surface. The mud-skipper belonging to the species, *Boleophthalmus boddarti* mostly occurs in the soft mud amongst the lowermost trees of seaward fringes. These mud-skipper are strongly territorial, especially during the breeding season. Usually each male is accompanied by a single female. The territory of the mud-skipper is centred on a nest burrow, and defence is strongest when pairs are formed.

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GENERAL INFORMATION FOR THE TOURISTS

APPENDIX I

GENERAL PARTICULARS

Location	Bay of Bengal (6°45'N-13°N Lat. 92°20'E-93°56'E Long)
Area (1981 Census)	8293 sq km (Andamans 6340 sq km Nicobars 1953 sq km)
Population (1981 Census)	1,88,254 (Andamans 1,57,821 Nicobars 30,433)
Sex Ratio (Females per 1000 males)	761
Literacy (1981 Census)	51.27 per cent
Forest Area (1982)	7144 sq km
Normal rainfall (Port Blair)	3180 mm
Maximum temperature	29.9°C
Minimum temperature	23.2°C
Relative humidity	79 per cent
Distance by sea	
Port Blair – Calcutta	1255 km
Port Blair – Madras	1190 km
Port Blair – Vishakhapatnam	1200 km
Highest Peak	Saddle Peak (732 m) (in North Andaman)
Highest Peak in Nicobars	Mount Thuillier (670 m) (in Great Nicobar)

APPENDIX II

PLACES OF TOURIST INTEREST

Cellular Jail	Port Blair
Anthropological Survey Museum	Port Blair
Botanical Survey Museum	Port Blair
Zoological Survey Museum	Port Blair
Marine Museum	Port Blair
Haddo Zoological Garden (Mini Zoo)	Port Blair
Chatham Saw Mill	Port Blair
Wimco Factory	Port Blair
Marina Park	Port Blair
Botanical Garden	South Andaman
Sipighat Farm	South Andaman
Dhanikhari Dam	South Andaman
Mount Harriet	South Andaman
Ross Island	South Andaman
Viper Island	South Andaman
Jolly boy Island	South Andaman
Corbyn's cove Beach	South Andaman
Wandoor Beach	South Andaman
North Bay Beach	South Andaman
Chiriatapu	South Andaman

APPENDIX III

INHABITED ISLANDS

<i>Name of the Islands</i>	<i>Population (1981 census)</i>
ANDAMAN GROUP	
1. Narcondam Island	17
2. East Island	72
3. North Andaman	20,429
4. Smith Island	261
5. Stewart Island	3
6. Aves Island	2
7. Interview Island	10
8. Middle Andaman	31,559
9. Parlob Island	13
10. Long Island	1,580
11. North Passage	155
12. Straight Island	41
13. Baratang Island	4,575
14. Peel Island	245
15. Havelock Island	2,600
16. Neil Island	1,560
17. South Andaman	87,173
18. Rutland Island	772
19. Little Andaman	7,214
20. Viper Island	7

*Name of the Islands**Population (1981 census)*

NICOBAR GROUP

21	Car Nicobar	15,485
22.	Choura Island	1,118
23.	Teressa Island	1,217
24.	Bompoka Island	53
25.	Katchal Island	3,702
26.	Nancowry Island	711
27.	Camorta	2,256
28.	Trinket	377
29.	Pulomilo	90
30.	Little Nicobar	298
31	Kondul	143
32.	Tillanchong	27
33.	Great Nicobar	4,976

APPENDIX IV

TRANSPORT

By Passenger Ships

Name of the ship	Fare per berth (excluding diet) as on 1 12.85	Total No. of Cabin- berth and bunks
1 M. V. ANDAMANS		
Deluxe State Room	Rs. 513.00	66
'A' State Room No. 1	Rs. 500.00	
'B' State Room (with two beds)	Rs. 488.00	
'C' Four & Six Berth Cabins	Rs. 389.00	
Bunk	Rs. 69.00	552
2. M. V. HARSHAVARDHANA (fully air-conditioned)		
Deluxe Cabin	Rs. 558.00	153
First Class Cabin	Rs. 513.00	
Second Class Cabin (A Type)	Rs. 389.00	
Second Class Cabin (B Type)	Rs. 355.00	
Bunk A/C	Rs. 100.00	596
3. T S. S. NANCOWRY		
Deluxe Cabin A/C	Rs. 558.00	295
'A' Class Cabin A/C	Rs. 500.00	
'B' Class Cabin A/C	Rs. 389.00	
'C' Class Cabin A/C	Rs. 355.00	
Bunk A/C	Rs. 100.00	608
Ordinary Bunk	Rs. 69.00	
4. M. V. AKBAR		
Deluxe Cabin A/C	Rs. 558.00	80
'A' Class Cabin	Rs. 500.00	
Special Dormitory Class A/C	Rs. 250.00	41
Special Bunk	Rs. 100.00	100
Ordinary Bunk	Rs. 69.00	1300

For Cabin passage write to : Assistant Secretary (Public), Andaman & Nicobar Administration, Port Blair—744101

For Bunk passage write to : Manager, The Shipping Corporation of India, Aberdeen Bazar Port Blair—744101

For Sailing Schedules write to :

- 1 Manager, The Shipping Corporation of India,
a) Nilhat House, 13 Strand Road, Calcutta—700 001
b) Aberdeen Bazar, Port Blair—744101.**
- 2. M/s KPV Shaik Mohammed Rowther & Co., 41, Lingi Chetty Street, Madras—1**
- 3. M/s AV Bhanojiraw & Guruda Pattabiramayya & Co.,
Post Box No. 17, Vishakapatnam.**

By Air (as on 31 12.85)

Calcutta—Port Blair (on every Tuesday, Thursday & Saturday)

Boeing 737 service of Indian Airlines

Departure Calcutta 06:00 hrs. Arrival Port Blair 08:00 hrs.

Departure Port Blair 08:40 hrs. Arrival Calcutta 10:40 hrs.

Single Fare Rs. 1096.00 (one way)

Madras—Port Blair (on every Sunday, Wednesday & Friday)

Boeing 737 Service of Indian Airlines

Departure Madras 06:10 hrs. Arrival Port Blair 08:15 hrs.

Departure Port Blair 08:55 hrs. Arrival Madras 11:00 hrs.

Single Fare Rs. 1107.00 (one way)

Inter-Island Passenger Vessel

M. V. Ongae ; T.S.S. Yerewa ; M.V. Sentinel ;

M. V. Triveni ; M. V. Gomati ; M. V. Narmada ;

M. V. Little Andaman and M. V. Chowra ;

For passage write to :

The Harbour Master, Andaman and Nicobar Islands, Port Blair.

APPENDIX V

ACCOMMODATION

A. Guest Houses

I. Maintained by Andaman P.W.D.

	Location	Tariff (excluding diet) as on 1 12.85	Whom to write for accommodation
1. Nicobarese Cottage (2 cottages)	Port Blair	Rs. 160.00 per cottage	Deputy Director, (Tourism) Secretariat, Port Blair
2. Megapode Nest (20 beds)	-do-	Rs. 55.00 per bed (A/C) Rs. 40.00 per bed (non A/C)	-do-
3. Circuit House, Haddo	-do-	Rs. 10.00 per bed	-do-
4. Tourist Home (36 beds)	Port Blair	Rs. 10.00 per bed Rs. 5.50 per bed (Govt. Servant on duty)	-do-
5. Guest House No. I (8 beds)	-do-	-do-	-do-
6. Guest House No. II (6 beds)	-do-	Rs. 10.00 per bed Rs. 3.50 per bed (Govt. Servant on duty)	-do-
7. Marine Hill Tourist Home	-do-	-do-	-do-
8. Corbyn's Cove Tourst Home	South Andaman		-do-
9. Poona Nallah, Guest House	South Andaman		
10. Inspection Bungalow, Wrightmyo	South Andaman		
11. Inspection Bungalow, Ferrargunj	South Andaman		
12. Neil Island Guest House	Neil Island, S. Andaman		
13. Inspection Bungalow, Havelock	Havelock Is., S. Andaman		
14. Guest House, Rangat	Middle Andaman		
15. Guest House, Betapur	-do-		

16. Guest House, Kadamtala	Middle Andaman	
17. Circuit House,	Mayabunder	North Andaman
		Executive Engineer, Mayabunder
18. Rest House, Mayabunder	-do-	} -do-
19. Rest House, Diglipur	-do-	
20. Rest House, Kalighat	-do-	
21. Rest House, Kishorinagar	-do-	
22. Circuit House,	Car Nicobar	Car Nicobar
		Executive Engineer, Car Nicobar
23. Guest House, Malacca	-do-	-do-
24. Inspection Bungalow,	Malacca	Car Nicobar
		-do-
24. Inspection Bungalow,	Teetop	Car Nicobar
		-do-
25. Inspection Bungalow,	West Katchal	Katchal Island
		Executive Engineer, Car Nicobar Division, Car Nicobar
26. Guest House, Comorta	Camorta Island	

II. Maintained by the Forest Department

1. Rest House, Wandoor	South Andaman	Divisional Forest Officer, Wimberlygunj, South Andaman
2. Rest House, Chiriatapu	South Andaman	-do-
3. Rest House, Nilambur	Baratang Island, S. Andaman	-do-
4. Rest House,	Long Island	Middle Andaman
5. Rest House, Elphinstone	Harbour	-do-
6. Rest House, Bakultala	-do-	-do-
7. Rest House,	Aerial Bay	North Andaman
		D.C.F., North Andaman

III. Maintained by the Forest Corporation

1. Rest House, Little	Andaman	Little Andaman Is.
		Managing Director, Forest Plantation and Development Corporation, Port Blair

IV. Maintained by the Municipal Board, Port Blair

**1 Municipal Guest
House, Port Blair**

**1 Delanipur,
Port Blair**

**Secretary,
Municipal Board,
Port Blair
-do-**

**2. Aberdeen Bazar,
Port Blair**

V. Youth Hostel

**Aberdeen Bazar
Port Blair**

**Warden, Youth
Hostel, Port Blair**

HOTELS

**1 Andaman Beach
Resort (Run by
Travel Corporation
of India)**

**Corbyn's Cove
South Andaman**

**Rs. 200.00
Single bed
Rs. 240.00
Double bed**

**2. Welcome Group
Bay Island Hotel**

**Marine Hill
Port Blair**

**Rs. 257.00
Single bed
Rs. 325.00
Double bed**

APPENDIX VI

TRIBALS

The tribal people of Andaman and Nicobar Islands represent a little more than 12 per cent of the total population of the entire territory according to 1981 census. The Bay Islands are the homeland of six important tribal groups, namely, the Great Andamanese, the Onge, the Jarawa, the Sentinelese, the Nicobarese, and the Shompen. Among them, the first four belong to the Andaman group of Islands while the remaining two belong to the Nicobar group of Islands.

ANDAMAN TRIBES

The Andaman Tribes or the Andamanese are black-skinned and pigmoid (about 150 cm in height), with woolly hair. They belong to the Negrito stalk and constitute the relics of a race now represented by themselves, the Semangs of the Malay Peninsula, and the Aetas of the Philippines. It is presumed that in very ancient times they occupied the south-eastern portion of the Asiatic continent and its outlying islands.

The Andamanese who were estimated about 10,000 in number during 1779 have dwindled to little more than 450 during the past two centuries. The trend of their rapid decline in population strength is indicated in the following table (P. 95). The four different tribal communities of the Andaman group of Islands are the Great Andamanese, the Onge, the Jarawa, and the Sentinelese. They speak distinctive dialects not mutually understood by them.

Great Andamanese

The Great Andamanese were originally divided into ten distinct tribes and thrived vigorously in North, Middle, and South Andamans. They were then identified as *Balawa*, *Bea*, *Bojigyab*, *Chariar* (or *Chari*), *Juwai*, *Kede*, *Kol*, *Kora*, *Toba* and *Yere*. Most of the ten tribes which came in direct contact with the outside people including the British since 1789 got lost to history and in about 100 years (from 1858 to 1961) their population strength declined alarmingly from 3500 to less than 20. The successors of these ten groups are now called the Great Andamanese. At present they are survived by 29 individuals of a hybrid generation and rehabilitated in Strait Island off the east coast of Middle Andaman (about 56 km north-east of Port Blair) since 1970.

These tribals are food gatherers and hunters. Their food mainly consists of wild pig, honey, various roots and tubers besides turtle, fish, molluscs, etc. However, as a result of close contacts with the settlers, they have, at present, changed their food habit considerably. They have now got used to rice, flour, tea, tobacco, etc.

The Great Andamanese used to live in two kinds of hut—the communal hut and the temporary hut. The communal hut was built on the ground with the roof thatched with variety of cane leaves, sloped down to the ground so that separate walls were

not needed. The temporary hut consisted of a sloping thatched roof covering a small sleeping platform constructed of bamboo splits and sticks. These traditional huts can not be found any more today. In new settlement, the Andaman Administration has constructed houses for these tribals with cemented floor, wooden walls, and tin-sheet roofs.

In the Great Andamanese society monogamy is the traditional norm. Divorce is not uncommon and widow re-marriage is socially sanctioned. The leadership among the Great Andamanese rested with men who are good in hunting and fishing. These tribals believe in the spirits of the forest, sky, and the sea. They have also faith in the existence of souls of their dead ancestors. To bury the dead body adjacent to the hut is their traditional custom.

At present the Great Andamanese do not maintain their original way of life and are looked after by the local Administration. Food, clothing, medicine, etc., are supplied to them free of cost by the Tribal Development Authority, locally called Andaman Janajati Vikas Samity. A few of them are now employed in Government Service also.

Onge

The Onge live in Little Andaman which is about 13 km south of Port Blair. They inhabit in two settlements, one at Dugong Creek (the larger settlement) and the other at South Bay. At present their population strength is 99.

The Onge differ from the Great Andamanese in language and in some aspects of their culture. However, their settlement pattern and subsistence activities were similar to those of the Great Andamanese. They have their local groups with defined territories for hunting and collecting forest products. Each clan member lives in his/her respective communal hut. Now these people live in quarters built for them by the Andaman Administration. These tribals still subsist as hunters and fishermen. Monogamy is their traditional social norm.

The Onge are very friendly with their neighbours, including the mainlanders.

Jarawa

The Jarawa live in a reserve forest of about 648 sq km in the western coast of South and Middle Andaman. This area has been declared as Jarawa Reserve. They are estimated to be about 250 in number and are at times hostile. The members of this tribe still continue their primitive way of life. Like the Onge the Jarawa also live in communal hut but this hut lacks sleeping platform. They utilise the naturally available materials such as palm leaves, barks, canes, sea-shells, corals, etc., for their ornaments as well as dress.

Some rapport could be established with a section of the Jarawa in 1974. Since then continuous efforts are being made to develop friendly relationship with them and

the Jarawa have shown definite interest in the outside world. On behalf of Andaman Administration, the Andaman Janajoti Vikash Samity has a regular programme of encouraging friendly contact with the Jarawa near Mt. Oldham (in Middle Andaman).

Sentinelese

The Sentinelese are the sole inhabitants of North Sentinel Island (with an area of 37 sq km) located 34 km off the west of South Andaman. They still live in complete isolation and the influence of the outside world in them is very little. They are also hostile and their population is estimated to be 80. They are semi-nomadic and their settlement consists of about 20 single huts, close to one another in a cluster. In February, 1982 a team from local Administration contacted a small batch of this tribal community who responded with friendly gestures for the first time. The local Administration made further two successful contacts with these tribal community—one in October, 1984 and the other on 6th February, 1985.

NICOBAR TRIBES

Two different tribal communities, namely, the Nicobarese and the Shompen inhabit the Nicobar Islands. Both the tribal communities belong to the Indo-Mongoloid stock.

Nicobarese

The Nicobarese are now about 22,000 in number and inhabit 12 islands of the Nicobar Archipelago, namely, Car Nicobar, Chowra, Terressa, Bompoka, Katchal, Camorta, Trinket, Nancowry, Pulomilo, Little Nicobar, Kondul and Great Nicobar. A few Nicobarese families have also been settled in Harmendra Nagar of Little Andaman.

On the basis of dialectic differences and cultural variations the Nicobarese can be divided into five sub-groups inhabiting different island as follows :

<i>Subgroups</i>	<i>Islands inhabited</i>
1 Car Nicobarese (Northern Nicobarese)	Car Nicobar Island
2. Chowrite	Chowra Island
3. Terressan	Terressa and Bompoka Islands
4. Central Nicobarese	Nancowry, Camorta, Trinket, and Katchal Islands
5. Southern Nicobarese	Pulomilo, Little Nicobar, Kondul and west coast of Great Nicobar Islands.

Each sub-group is culturally homogeneous within itself and its members speak a single dialect. The Nicobarese are horticulturists. Coconut, pandanus, banana, papaya, yam and other starchy roots and tubers are their principal items of crop. Besides, they also obtain their food through fishing and hunting. Pig rearing is an important traditional job of their women folk.

The Nicobare-villages are located along coastal areas. The Nicobare-huts are built on wooden piles, raising the floor from 1.5 m to 2.5 m above the ground level. Traditionally they live in two different types of hut. One is dome-shaped round hut and the other is of rectangular type. The materials used for their house constructions are wooden logs, stems of areca palm, coco palm, etc. The roof is thatched by grass, canes, bamboo and coconut leaves.

Each village has its own headman (captain) and the headmen of several villages form a council with a recognised chief headman or chief captain. Monogamy is the social norm among the Nicobarese and incidences of polygamy are extremely rare. The religion of the Nicobarese is animistic. They believe that the world is full of evil spirits, which cause sickness, damage to property, and harm individuals in many ways. The majority of the Nicobarese have now been converted to Christianity.

At present their traditional beliefs and customs are changing due to the spread of Christianity. Their literacy rate has been increasing considerably (18 per cent as per 1971 Census). Nicobarese particularly of Great Nicobar Island have taken up modern way of living. They are now readily accepting Government jobs and other employments within these islands. But in general, they are not interested to go out of their islands for job or business.

In contrast with the Andamanese, the Nicobarese have been increasing rapidly from 6500 to 22000 within a span of about 80 years (from 1901 to 1981).

Shompen

The Shompen inhabit the interior forests of the Great Nicobar Island. They are around 214 in number as per 1981 Census. They are shy in nature and avoid contact with outsiders.

The Shompen live invariably along or around the perennial freshwater rivers, streams, or rivulets in the forests. The Shompen villages generally comprise 2 to 10 huts in a place. Their huts are constructed on piles, the height of which varies from 1.5 m to 3 m. They use palm leaves and Pandanus leaves to thatch their huts. The floor space on the piles is used for their living while the space below it is utilised for their domestic animals.

The Shompen, like the Andamanese, are hunters and food-gatherers and lead a semi-nomadic life. They also cultivate yams, Pandanus, coconuts, arecanuts, bananas, etc., with the help of digging sticks. They maintain small herds of pigs. Besides, they hunt wild pigs with their spears and fish with harpoons. They make cane baskets, bark-trays and outrigger canoes for their daily needs.

Monogamy as well as polygamy are their social norms. In each village the oldest male is held to be the head, but his role and powers are not well defined. Burial is their traditional custom of disposal of the deads.

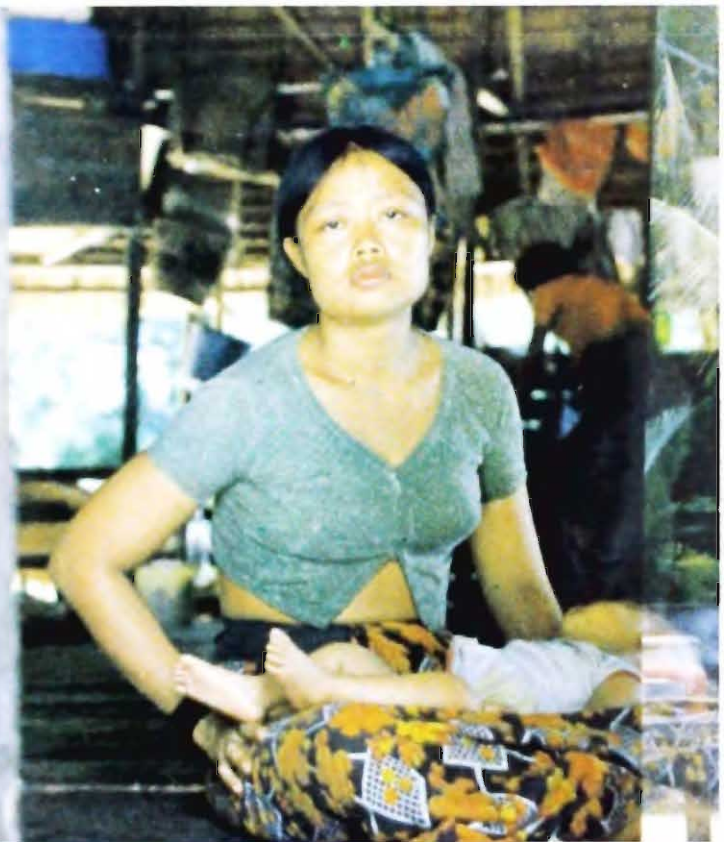


Onge mother and a child



Onge woman with a bucket

A Nicobarese family





A Jarawa woman

Shompen mother and children



A Great Andamanese couple

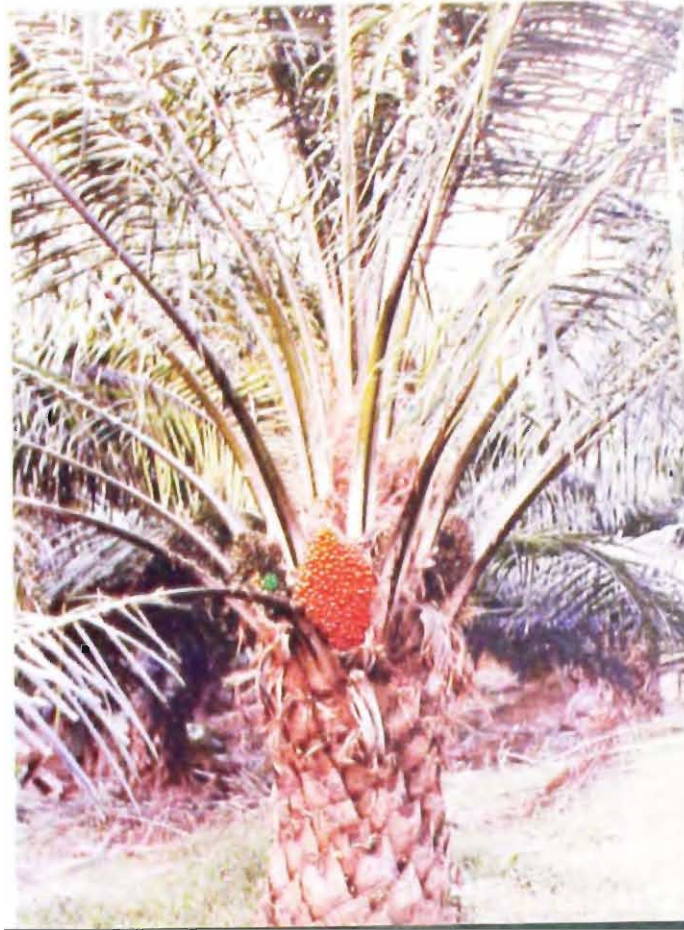


Cellular Jail

King coconut tree



Red Oil Palm





Light house at Pygmalion Point,
the southernmost point
of Indianterritory

A panoramic view of sun set



TABLE**Population figures of Scheduled tribes in Andaman and Nicobar Islands 1858—1981**

Tribes	1858	1901	1911	1921	1931	1941	1951	1961	1971	1981
Great Andamanese	3500	625	455	209	90	—	23	19	24	29*
Onges	(700)	(672)	(631)	(346)	(250)	—	(150)	129	112	99*
Jarawas	(600)	(468)	(114)	(114)	(70)	—	(50)	(500)	(275)	(250)
Sentinelese	—	(117)	(117)	(117)	(50)	—	—	(50)	(82)	(80)
Nicobarese	—	6501	7991	9272	9589	—	12009	13903	17774	22025
Shompen	—	(348)	(375)	(375)	(200)	—	(20)	(71)	(92)	214

Parenthesis indicates estimated figure
 Figures of February, 1985

APPENDIX VII

EARLY SETTLEMENT

The existence of both the Andamans and the Nicobars has been known from the time of Claudius Ptolemy who published an annotated atlas during the Second Century.

Archibald Blair, a Surveyor of the Indian Navy, initiated first Settlement at Port Blair (the then Port Cornwallis which was renamed Port Blair after his name) in 1789 at the instruction of the Government of India. But, it was shifted to North East Harbour of North Andaman in 1792 for strategical reasons. This settlement was abolished in 1796 because of severe illness and mortality. Again, in 1858 a new settlement was established at Port Blair. Since then, the settlers from the mainland have been brought to these islands in several phases.

The Nicobars attracted the attention of the missionaries at about 17th century. In 1756 the Danes took the possession of the islands and built up a colony which lasted upto 1759. Again, in 1768 the second colony was established by them which could not prolong beyond 1787. Then after several unsuccessful attempts to build up a colony over there, the Danis Government ultimately handed over Nicobars to the British who took the possession in 1869 and established Nancowry Harbour.

In 1872, the Andamans and Nicobars were put under the charge of a Chief Commissioner. Mention may be made here that these islands have come under the charge of Lt. Governor since 1982.

APPENDIX VIII

CELLULAR JAIL

Andaman and Nicobar Manual Settlement Order No. 423

begins as follows

“Port Blair, the 13th September, 1893

“The Government of India has ordered the building of a Cellular Jail at Aberdeen to accommodate 600 prisoners at an estimated cost of Rs. 5,17,352 (Cash expenditure Rs. 95,881). Mr. Mc. Quilen, Sub-Engineer, is to be in charge of the building of it, in addition to his other duties”

But, the construction of the Cellular Jail was started in 1898 and it took ten years for completion. The jail had seven three-storied wings with 694 cells, branching off from a four-storied central tower.

During the World War II, the Japanese occupied these islands in 1942 and shattered Wing Nos. 3 and 4 of the jail. The bricks thus obtained were used in the construction of trench and baffle walls all over the islands. Later on Wing Nos. 2 and 5 were also dismantled. In the space of the Wing Nos. 2, 3, 4 and 5 now stands the Govind Ballav Pant Hospital, the biggest and most important hospital of the island.

The Cellular Jail has now three wings of which Wing No. 1 is used as the District Jail and the Wings 6 and 7 have been left blank as a memorial to the visitors to pay their homage to the freedom fighters who died or languished for the cause of the country.

Once ill-famous and notorious Cellular Jail is now a place of Indian pilgrimage and has rightly been declared as the National Memorial.

List of freedom-fighters who incarcerated in the Cellular Jail during 1909 to 1938 is given below

ASSAM

1 Shri Benoy Laskar, 2. Shri Gopen Roy, 3. Shri Gouranga Mohan Das, 4. Shri Motilal Roy and 5. Shri Satyendra Roy.

BENGAL

1 Shri Abani Bhusan Chakrabarti, 2. Shri Abani Ranjan Ghosh, 3. Shri Abani Mukherjee, 4. Shri Abdul Kader Chaudhuri, 5. Shri Abhay Pada Mukherjee, 6. Shri Abinash Bhattacharjee, 7. Shri Achyut Ghatak, 8. Shri Adhir Ranjan Nag, 9. Shri Adhir Chandra Sinha, 10. Shri Ajay Sinha, 11 Shri Ajit Kumar Mitra, 12. Shri Akshay Kumar Choudhuri, 13. Shri Amalendu Bagchi, 14. Shri Amar Mukherjee, 15. Shri Amar Sutradhar, 16. Shri Amrita Lal Hazra, 17. Shri Amritendu Mukherjee, 18. Shri Amulya Kumar Mitra, 19. Shri Amulya Roy, 20. Shri Amulya Chandra Sen Gupta, 21 Shri Annanda Prasad Gupta, 22. Shri Ananta Bhattacharjee, 23. Shri Ananta (Bhola)

Chakrabarti, 24. Shri Ananta Kumar Chakrabarti, 25. Shri Ananta Dey, 26. Shri Ananta Mukherjee, 27. Shri Ananta Lal Singh, 28. Shri Anath Bandhu Saha, 29. Shri Anil Mukherjee, 30. Shri Annanda Charan Pal, 31. Shri Anukul Chatterjee, 32. Shri Arabinda Dey, 33. Shri Ashutosh Lahiri, 34. Shri Aswini Kumar Basu, 35. Shri Atul Chandra Datta, 36. Shri Bangeswar Roy, 37. Shri Bankim Chakrabarti, 38. Shri Barindra Kumar Ghosh, 39. Shri Barindra Nath Ghosh, 40. Shri Benoy Kumar Basu, 41. Shri Benoy Bhusan Roy, 42. Shri Benoy Tarafdar, 43. Shri Bhaba Ranjan Patutundu, 44. Shri Bhabatosh Karmakar, 45. Shri Bhabesh Talukdar, 46. Shri Bhagwan Chandra Biswas, 47. Shri Bharat Sharma Roy, 48. Shri Bholanath Roy, 49. Shri Bhuban Mohan Chanda, 50. Shri Bhupal Chandra Basu, 51. Shri Bhupal Chandra Panda, 52. Shri Bhupendra Chandra Bhattacharjee, 53. Shri Bhupendra Nath Ghosh, 54. Shri Bhupesh Chandra Banerjee, 55. Shri Bhupesh Chandra Guha, 56. Shri Bhupesh Chandra Saha, 57. Shri Bibhuti Bhusan Banerjee, 58. Shri Bidhu Bhusan Sen, 59. Shri Bibhuti Bhusan Sarkar, 60. Shri Bidhu Bhusan Dey, 61. Shri Bidhu Bhusan Sarkar, 62. Shri Bidhu Bhusan Sen, 63. Shri Bidyadhar Saha, 64. Shri Bijan Kumar Sen, 65. Shri Bijoy Krishna Banerjee, 66. Shri Bijoy Kumar Ghosh, 67. Shri Bimal Chandra Bhattacharjee, 68. Shri Bimal Bhowmik, 69. Shri Bimal Das Gupta, 70. Shri Bimal Kumar Sarkar, 71. Shri Bimalendu Chakrabarti, 72. Shri Biraj Deb, 73. Shri Biren Choudhury, 74. Shri Birendra Chandra Lahiri, 75. Shri Biren Roy, 76. Shri Biren Sen, 77. Shri Biru Bhussan Chakrabarti, 78. Shri Brojendra Nath Datta, 79. Shri Chandra Kanta Bhattacharjee, 80. Shri Chitta Biswas, 81. Shri Chitta Ranjan Das, 82. Shri Chitta Ranjan Datta, 83. Shri Chunilal Deb, 84. Shri Deb Kumar Das, 85. Shri Debendra Talukdar, 86. Shri Dharani Banik, 87. Shri Dharani Biswas, 88. Shri Dharani Chakrabarti, 89. Shri Dharani Dhar Roy, 90. Shri Dhiren Choudhury, 91. Shri Dhiren Datta, 92. Shri Dharendra Nath Bhattacharjee, 93. Shri Dharendra Kumar Biswas, 94. Shri Dharendra Chakrabarti (Komilla), 95. Shri Dharendra Chandra Chakrabarti (Mymensingh), 96. Shri Dharendra Chandra Das, 97. Shri Dhrubesh Chatterjee, 98. Shri Dinesh Banik, 99. Shri Dinesh Chandra Das (Mymensingh), 100. Shri Dinesh Chandra Das (alias Tagar), 101. Shri Dinesh Das Gupta, 102. Shri Dinesh Dhar, 103. Shri Dinesh Chandra Saha, 104. Shri Durga Sankar Das, 105. Shri Dwijendra Nath Naha, 106. Shri Dwijendra Nath Talapatra, 107. Shri Fakir Chandra Sen Gupta, 108. Shri Gajen Chandra Dey, 109. Shri Ganesh Chandra Ghosh, 110. Shri Gobinda Kar, 111. Shri Gobinda Chandra Kar, 112. Shri Gobinda Prasad Bera, 113. Shri Gomiruddin Sarkar, 114. Shri Gopal Acharji, 115. Shri Gopal Chandra Deb, 116. Shri Gopendra Lal Roy, 117. Shri Gopi Mohan Saha, 118. Shri Gour Gopal Datta, 119. Shri Harekrishna Konar, 120. Shri Haren Chandra Khangar, 121. Shri Harendra Bhattacharjee, 122. Shri Harendra Nath Das (Mandal), 123. Shri Haribal Chakrabarti, 124. Shri Haridas Saha, 125. Shri Harihar Datta, 126. Shri Haripada Banerjee, 127. Shri Haripada Basu, 128. Shri Haripada Bhattacharjee, 129. Shri Haripada Choudhury, 130. Shri Haripada Dey, 131. Shri Hem Chandra Bakshi, 132. Shri Hem Chandra Das (Kanungo), 133. Shri Hem Chandra Datta, 134. Shri Hemendra Nath Chakrabarti, 135. Shri Himanshu Bhowmik, 136. Shri Hiramohan Chatterjee, 137. Shri Hriday Das (Faridpur), 138. Hriday Das (Chittagong), 139. Shri Hrishikesh Basu, 140. Shri Hrishikesh Bhattacharjee, 141. Shri Hrishikesh Datta, 142. Shri Hrishikesh Kanjilal, 143. Shri Indu Bhusan Das, 144. Shri Indu Bhusan Roy, 145. Shri Jagadananda Mukherjee, 146. Shri Jagat Basu, 147. Shri Jagat Roy, 148. Shri Jagneswar Das, 149. Shri Jamini Kumar Dey, 150. Shri Janaki Nath Das, 151. Shri Jatindra Nath Nandi, 152. Shri Jayesh Chandra Bhattacharjee, 153. Shri Jiban Guha Thakurta, 154. Shri

Jiban Molla 155. Shri Jibendra Kumar Das, 156. Shri Jitendra Nath Chakrabarti, 157. Shri Jitendra Nath Gupta, 158. Shri Jitendra Majumdar, 159. Shri Jnanda Gobinda Gupta, 160. Shri Jyogendra Chakrabarti, 161. Shri Jyogendra Mohan Guha, 162. Shri Jyogesh Chakrabarti, 163. Shri Jyogesh Chandra Das, 164. Shri Jyotindra Dey, 165. Shri Jyotirmay Roy, 166. Shri Jyotish Majumdar, 167. Shri Jyotish Chandra Pal, 168. Shri Kalachand Chakrabarti, 169. Shri Kalidas Ghosh, 170. Shri Kali Kinkar Dey, 171. Shri Kali Mohan Banerjee, 172. Shri Kali Pada Bhattacharjee, 173. Shri Kali Pada Chakrabarti, 174. Shri Kali Pada Roy, 175. Shri Kaliprasanna Roy Choudhury, 176. Shri Kamakhya Charan Ghosh, 177. Shri Kamal Srimani, 178. Shri Kamini Dey, 179. Shri Kartik (Paresh) Chandra Dey, 180. Shri Kartik Sarkar, 181. Shri Kaumudi Kanta Bhattacharjee, 182. Shri Keshab Lal Chatterjee, 183. Shri Keshab Samajdar, 184. Shri Khagendra Nath Choudhuri (*alias* Suresh Chandra), 185. Shri Khoka (Sudhindra Kumar) Roy, 186. Shri Kinuram Pal (*alias* Priyanath), 187. Shri Kiran Dey, 188. Shri Kirti Bhusan Majumdar, 189. Shri Kripanath Dey, 190. Shri Krishna Biswas, 191. Shri Krishnapada Chakrabarti, 192. Shri Kshitish Chandra Choudhury, 193. Shri Kshitish Chandra Roy, 194. Shri Kshitish Chandra Sanyal, 195. Shri Kumud Mukherjee, 196. Shri Kumudini Ghosh, 197. Shri Lal Mohan Sen, 198. Shri Loknath Bal, 199. Shri Lolit Chakrabarti, 200. Shri Lolit Chandra Raha, 201. Shri Lolit Singh, 202. Shri Madan Mohan Bhowmik, 203. Shri Madan Roy Choudhury, 204. Shri Madhu Banerjee, 205. Shri Madhu Sudan Datta, 206. Shri Md. Ibrahim (*alias* Tarapada), 207. Shri Madan Mohan Bhowmik, 208. Shri Mahendra Bhowmik, 209. Shri Mahesh Barua, 210. Shri Makhan Dey, 211. Shri Manilal Datta, 212. Shri Mani (Ramani) Gungali, 213. Shri Manindra Lal Choudhury, 214. Shri Manindra Chandra Sen, 215. Shri Manmatha Datta, 216. Shri Man Mohan Saha, 217. Shri Monoranjan Banerjee, 218. Shri Manoranjan Choudhuri, 219. Shri Manoranjan Guha Thakurta, 220. Shri Mathura Nath Datta, 221. Shri Mohanlal Nag, 222. Shri Mohan Kishore Namadas, 223. Shri Mohit Mohan Mitra, 224. Shri Mokshada Ranjan Chakrabarty, 225. Shri Mritunjay Banerjee, 226. Shri Mukul Ranjan Sen, 227. Shri Murari Goswami, 228. Shri Nagen Das Gupta, 229. Shri Nagen Modak, 230. Shri Nagendra Mohan Mustafi, 231. Shri Nagendra Deb, 232. Shri Nagendra Nath Chandra, 233. Shri Nagendra Nath Dev, 234. Shri Nagendra Nath Gupta, 235. Shri Nagendra Nath Sarkar, 236. Shri Nalini Das, 237. Shri Nalini Sen Gupta, 238. Shri Nanda Dulal Singh, 239. Shri Nandalal Das Gupta, 240. Shri Nani Das Gupta, 241. Shri Nani Gopal Das, 242. Shri Nani Gopal Mukherjee, 243. Shri Narayan Chandra Roy, 244. Shri Naren Ghosh Choudhuri, 245. Shri Narendra Nath Das, 246. Shri Narendra Chandra Ghosh, 247. Shri Narendra Prasad Ghosh, 248. Shri Nepal Sarkar, 249. Shri Nibaran Chakrabarti, 250. Shri Nikhil Ranjan Guha Roy, 251. Shri Nikunja Behari Pal, 252. Shri Niranjan Sen, 253. Shri Nirapada Roy, 254. Shri Nirendra Barua, 255. Shri Nirmalendu Guha, 256. Shri Nishakanta Roy Choudhury, 257. Shri Nitya Ranjan Choudhuri, 258. Shri Nripendra Datta Roy, 259. Shri Paresh Chandra Choudhury, 260. Shri Paresh Chandra Guha, 261. Shri Parimal Chandra Ghosh, 262. Shri Phani Nandi, 263. Shri Phani Bhusan Das Gupta, 264. Shri Phani Bhusan Roy, 265. Shri Prabir Kumar Goswami, 266. Shri Prafulla Bhowmik, 267. Shri Prafulla Kumar Biswas, 268. Shri Prafulla Kumar Majumdar, 269. Shri Prafulla Narayan Sanyal, 270. Shri Prakash Chandra Sett, 271. Shri Pran Gopal Mukherjee, 272. Shri Pran Krishna Chakrabarti, 273. Shri Pran Krishna Choudhury, 274. Shri Prasanta Kumar Sen Gupta, 275. Shri Pravash Kumar Roy, 276. Shri Prabodh Kumar Roy, 277. Shri Pradyot Roy Choudhury, 278. Shri Pramode Ranjan Basu, 279. Shri

Pravakar Biruni, 280. Shri Pravat Mitra, 281 Shri Pulin Behari Das, 282. Shri Pravat Chandra Chakrabarti, 283. Shri Pravat Kumar Ghosh, 284. Priyada Ranjan Chakrabarti 285. Shri Purna Goswami, 286. Shri Purnendu Sekhar Guha, 287. Shri Rabindra Banerjee, 288. Shri Rabindra Chandra Niyogi, 289. Shri Rabindra Nath Guha Roy, 290. Shri Radha Ballav Gope, 291 Shri Radhika Dey (Das), 292. Shri Rajani Kanta Sarkar, 293. Shri Rajat Bhusan Datta, 294. Shri Rajendra Nath Chakrabarti, 295. Shri Raj Mohan Karanjai, 296. Shri Rakhal Chandra Dey, 297. Shri Rakhal Das Mallick, 298. Shri Ram Chandra Das, 299. Shri Ramendra Nath Samajdar, 300. Shri Ramesh Chatterjee, 301 Shri Ramesh Chandra (Das) Roy, 302. Shri Ram Krishna (Mandal) Sarkar, 303. Shri Randhir Das Gupta, 304. Shri Rebati Mohan Saha, 305. Shri Sachindra Nath Datta, 306. Shri Sachin Chakrabarti, 307. Shri Sachindra Lal Mitra, 308. Shri Sachindra Chandra Home, 309. Shri Sachindra Lal Kar Gupta, 310. Shri Sachindra Nath Mitra, 311 Shri Sachindra Nandi, 312. Shri Sailesh Dutta, 313. Shri Samadish Chandra Roy, 314. Shri Samadish Chandra Roy, 315. Shri Samarendra Ghosh, 316. Shri Sanatan Roy, 317. Shri Santi Gopal Sen, 318. Shri Santipada Chakrabarti, 319. Shri Santosh Kumar Datta, 320. Shri Sanukul Chatterjee, 321 Shri Sarada Prasanna Basu, 322. Shri Saradindu Bhattacharjee, 323. Shri Sarat Dhupi Das, 324. Shri Saroj Guha, 325. Shri Saroj Roy, 326. Shri Saroj Kumar Basu, 327. Shri Sarasi Mohan Moitra, 328. Shri Sashi Mohan Bhattacharjee, 329. Shri Satish Chandra Basu, 330. Shri Satish Chandra Chatterjee (Bhattacharjee), 331 Shri Satish Chandra Pakrashi, 332. Shri Satyabrata Chakrabarti, 333. Shri Satya Ranjan Basu, 334. Shri Satya Ranjan Ghosh, 335. Shri Satyendra Kumar Basu, 336. Shri Satyendra Narayan Majumdar, 337. Shri Shahaya Ram Das, 338. Shri Sirajul Huque, 339. Shri Sitansu Datta Roy, 340. Shri Sridhar Goswami, 341 Shri Subal Chandra Roy, 342. Shri Subodh Choudhury, 343. Shri Subodh Roy, 344. Sri Sudhansu (Basu) Das Gupta, 345. Shri Sudhansu (Manu) Das Gupta, 346. Shri Sudhansu Das Gupta (Bankura), 347. Shri Sudhansu Lahiri, 348. Shri Sudhansu Sen Gupta, 349. Shri Sudhendu Chandra Dam, 350. Shri Sudhindra Nath Bhattacharjee, 351 Shri Sudhindra Roy, 352. Shri Sudhir Bhattacharjee, 353. Shri Sudhir Choudhury, 354. Shri Sudhir Chandra Dey, 355. Shri Sudhir Kumar Roy, 356. Shri Sudhir Kumar Samajdar, 357. Shri Sudhir Kumar Sarkar, 358. Shri Sukhendu Bikash Dastidar, 359. Shri Sukumar Ghosh, 360. Shri Sukumar Sen Gupta, 361 Shri Sunil Kumar Chatterjee, 362. Shri Sunirmal Sen, 363. Shri Suren Achari, 364. Shri Suren Banik, 365. Shri Suren Surkhel, 366. Shri Surendra Nath Biswas, 367. Shri Surendra Nath Datta, 368. Shri Surendra Dhar Choudhury, 369. Shri Surendra Mohan Kar Roy, 370. Shri Surendra Nath Datta Gupta, 371 Shri Suresh Chandra Das, 372. Shri Suresh Chandra Sen Gupta, 373. Shri Sushil Das Gupta, 374. Shri Sushil Kumar Banerjee, 375. Shri Sushil Kumar Chakrabarti, 376. Shri Sushil Kumar Dey, 377. Shri Trailakya Chakrabarti, 378. Shri Ullash Kar Datta, 379. Shri Uma Sankar Konar, 380. Shri Umesh (Khudiram) Bhattacharjee, 381 Shri Upen Saha, 382. Shri Upendra Nath Banerjee, 383. Shri Upendra Nath Mandal, 384. Shri Usha Ranjan Dey.

BIHAR

1 Shri Biswanath Mathur, 2. Shri Chandrika Singh, 3. Shri Gouri Sankar Doubey, 4. Shri Gulab Chand Gupta, 5. Shri Jogendra Shukul, 6. Shri Kamal Nath Tiwari, 7. Shri Kanhaiya Lal Misir, 8. Shri Kedarmoni Shukul, 9. Shri Kesho Prashad, 10. Shri Mahabir Misir, 11 Shri Malay Brahmachari, 12. Shri Mohit Adhikari, 13. Shri Nanku

Singh, 14. Shri Pramatha Nath Ghosh, 15. Shri Ram Pratap Singh, 16. Shri Shyama Krishna Agarwal, 17. Shri Shyama Charan Bharatwar, 18. Shri Shyamdeo Narayan (*alias* Ram Singh) and 19. Shri Suraj Nath Chaube.

BOMBAY

1 Shri Daji Narayan Joshi, 2. Shri Ganesh Damodar Savarkar, and 3. Shri Vinayak Damodar Savarkar.

DELHI

1 Shri Dhawan Tari and 2. Shri Harabandhu Samajdar.

MADRAS

1 Shri Kotawa Korrabu, 2. Shri Pandu Padalbonangi, 3. Shri Prativadi Bhanayankara Venkatchary, 4. Shri Sanyasayya Golivilli, 5. Shri Sanyasi Kunchatti, 6. Shri Satyanarayan Raju, 7. Shri T Satchidananda Sivam and 8. Shri Virayya Dora Taggi.

PUNJAB

1 Shri Ali Ahmed Siddiqui, 2. Shri Amar Singh, 3. Shri Bhai Paramanand, 4. Shri Bhan Singh, 5. Shri Bishen Singh s/o Jawla Singh, 6. Shri Bishen Singh, s/o Kasur Singh, 7. Shri Bishen Singh No. 3, 8. Shri Bishen Singh No. 4, 9. Shri Channan Singh, 10. Shri Chattar Singh No. 1 11 Shri Chattar Singh No. 2, 12. Shri Chet Ram, 13. Shri Chuher Singh, 14. Shri Gurudas Singh, 15. Shri Gurudit Singh, 16. Shri Gurumukh Singh No. 1 17. Shri Gurumukh Singh No. 2, 18. Shri Hardit Singh, 19. Shri Harnam Singh, 20. Shri Hazara Singh, 21 Shri Hazari Singh, 22. Shri Hidaram, 23. Shri Hirda Singh, 24. Shri Inder Singh No. 1 25. Shri Inder Singh No. 2, 26. Shri Jagat Ram, 27. Shri Jawand Singh, 28. Shri Jawala Singh, 29. Shri Jiwan Singh, 30. Shri Kala Singh s/o Ghasita Singh, 31 Shri Kala Singh s/o Gulab Singh, 32. Shri Kapur Singh, 33. Shri Kartar Singh, 34. Shri Kehr Singh s/o Bhan Singh, 35. Shri Kehr Singh s/o Nihal Singh, 36. Shri Kesar Singh, 37. Shri Kirpa Singh, 38. Shri Kirpal Singh, 39. Shri Kusal Singh, 40. Shri Kushiram Mehta, 41 Shri Lakhan Singh, 42. Shri Lal Singh No. 1 43. Shri Lal Singh No.2, 44. Shri Madan Singh, 45. Shri Mangal Singh, 46. Shri Manohar Singh, 47. Shri Munsha Singh, 48. Shri Nand Singh No. 1 49. Shri Nand Singh No. 2, 50. Shri Natha Singh, 51 Shri Nehar Singh, 52. Shri Nidhan Singh, 53. Shri Piara Singh 54. Shri Prithur Singh Azad, 55. Shri Raja Ram, 56. Shri Ram Raksha Bhale, 57. Shri Ram Saran Das, 58. Shri Randhir Singh, 59. Shri Roda Singh Jatt, 60. Shri Rulla Singh, 61 Shri Rurh Singh, 62. Shri Sajjan Singh, 63. Shri Saon Singh, 64. Shri Sher Singh, 65. Shri Shingara Singh, 66. Shri Shiv Singh, 67. Shri Sohan Singh, 68. Shri Sucha Singh, 69. Shri Surain Singh, 70. Shri Surzan Singh, 71 Shri Teja Singh, 72. Shri Thakkar Singh, 73, Shri Udhem Singh, 74. Shri Wasakha Singh, and 75. Shri Waswa Singh.

UNITED PROVINCE

1 Shri Bachu Lal, 2. Shri Batukeswar Datta, 3. Shri Bijoy Kumar Sinha, 4. Shri Gaya Prasad, 5. Shri Govind Ram, 6. Shri Hoti Lal, 7. Shri Jaidev Kapoor, 8. Shri Ladha Ram, 9. Shri Lakshmi Kanta Shukla, 10. Shri Kundan Lal Gupta, 11 Shri Mahavir Singh, 12. Shri Mukhada Babu, 13. Shri Mujtaba Hussain, 14. Shri Nandgopal, 15. Shri Paramanand (Jhansi), 16. Shri Prem Prakash, 17. Shri Ram Hari, 18. Shri Ram Singh Dogra, 19. Shri Roshan Lal, 20. Shri Sachindra Nath Sanyal, 21 Shri Shambhu Nath Azad, 22. Shri Sheo Varma and 23. Shri Vishnu Saran Dublis.

APPENDIX IX

A. LIST OF MAMMALS RECORDED FROM ANDAMAN AND NICOBAR ISLANDS

A = Andaman Islands ; N = Nicobar Islands

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
ORDER INSECTIVORA				
*1	Andaman Island Spiny Shrew <i>Crocidura hispida</i> Thomas	+	—	Endemic
*2.	Miller's Andaman Spiny Shrew <i>Crocidura andamanensis</i> Miller	+	—	Endemic
3.	Nicobar Spiny Shrew <i>Crocidura nicobarica</i> Miller	—	+	Endemic
4.	Jenkin's Andaman Spiny Shrew <i>Crocidura jenkinsi</i> Chakraborty	+	—	Endemic
*5.	Nicobar Tree Shrew <i>Tupaia nicobarica nicobarica</i> (Zelevor)	—	+	Endemic
*6.	Nicobar Tree Shrew <i>Tupaia nicobarica surda</i> Miller	—	+	Endemic
ORDER CHIROPTERA				
7.	Narcondam Small Flying Fox <i>Pteropus melanotus satyrus</i> Anderson	+	—	Endemic
8.	Car Nicobar Flying Fox <i>Pteropus faunulus</i> Miller	—	+	Endemic
9.	Nicobar Flying Fox <i>Pteropus melanotus melanotus</i> Blyth	—	+	Endemic
10.	Andaman Flying Fox <i>Pteropus melanotus tytleri</i> Mason	+	—	
11	Malayan Large Flying Fox <i>Pteropus vampyrus</i> (Linnaeus)	+	+	
12.	Indian Flying Fox <i>Pteropus giganteus</i> (Brunnich)	+	+	
13.	Shortnosed Fruit Bat <i>Cynopterus sphinx</i> (Vahl)	+	—	
14.	Nicobar Lesser Shortnosed Fruit Bat <i>Cynopterus brachyotis scherzeri</i> Zelevor	—	+	Endemic
15.	Andaman Lesser Shortnosed Fruit Bat <i>Cynopterus brachyotis brachysoma</i> Dobson	+	—	Endemic
16.	Dobson's Longtongued Fruit Bat <i>Eonycteris spelaea</i> (Dobson)	+	—	

**Tupaia* is now placed under separate order, Scandentia.

APPENDIX IXA (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
17.	Blackbeared Tomb Bat <i>Taphozous melanopogon melanopogon</i> Tamminck	+	—	
18.	Blyth's Pouchbearing Bat <i>Taphozous saccolaimus crassus</i> Blyth	—	+	
19.	Malay False Vampire <i>Megaderma spasma</i> (Linnaeus)	+	—	
20.	Dobson's Horseshoe Bat <i>Rhinolophus affinis andamanensis</i> Dobson	+	—	Endemic
21.	South Andaman Horseshoe Bat <i>Rhinolophus cognatus cognatus</i> Andersen	+	—	Endemic
22.	North Andaman Horseshoe Bat <i>Rhinolophus cognatus famulus</i> Andersen	+	—	Endemic
23.	Little Nicobar Leafnosed Bat <i>Hipposideros ater nicobarulae</i> Miller	—	+	Endemic
24.	Nicobar Leafnosed Bat <i>Hipposideros diadema nicobarensis</i> Dobson	—	+	Endemic
25.	Fulvus Leafnosed Bat <i>Hipposideros fulvus fulvus</i> Gray	—	+	
26.	Insular Mouseeared Bat <i>Myotis dryas</i> Andersen	+	—	Endemic
27.	Nicobar Pipistrelle <i>Pipistrellus camortae</i> Miller	—	+	Endemic
28.	Indian Pipistrelle <i>Pipistrellus coromandra</i> (Gray)	—	+	
29.	Tickell's Bat <i>Hesperoptenus tickelli</i> (Blyth)	+	—	
30.	Blyth's Clubfooted Bat <i>Tylonycteris pachypus fulvida</i> (Blyth)	+	—	
31.	Lesser Yellow Bat <i>Scotophilus kuhli</i> Leech	—	+	
32.	Bentwinged Bat <i>Miniopterus australis pusillus</i> Dobson	—	+	
ORDER PRIMATE				
33.	Pigtailed Macaque <i>Macaca nemestrina leonina</i> Blyth	+	—	Occurrence doubtful
34.	Nicobar Crab-eating Macaque <i>Macaca fascicularis umbrosa</i> Miller	—	+	Endemic
ORDER CARNIVORA				
35.	Andaman Masked Palm Civet <i>Paguma larvata tytleri</i> (Tytler)	+	—	Endemic

APPENDIX IXA (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
36.	Jungle Cat <i>Felis chaus</i> Guldenstaedt	+	—	Occurrence doubtful
ORDER ARTIODACTYLA				
37.	Andaman Wild Pig <i>Sus scrofa andamanensis</i> Blyth	+	—	Endemic
38.	Nicobar Wild Pig <i>Sus scrofa nicobarica</i> Miller	—	+	Endemic
39.	Barking Deer <i>Muntiacus muntjak</i> (Zimmermann)	+	—	
40.	Chital <i>Axis axis</i> (Erxleben)	+	—	
ORDER RODENTIA				
41	Northern Palm Squirrel <i>Funambulus pennanti</i> Wroughton	+	—	
42.	House Rat <i>Rattus rattus alexandrinus</i> (Geoffroy)	+	+	
43.	<i>Rattus rattus andamanensis</i> (Blyth)	+	—	Endemic
44.	<i>Rattus rattus atridorsum</i> (Miller)	+	—	Endemic
45.	<i>Rattus rattus flebilis</i> (Miller)	+	—	Endemic
46.	<i>Rattus rattus holchu</i> Chaturvedi	+	+	Endemic
47.	<i>Rattus rogersi</i> (Thomas)	+	—	
48.	<i>Rattus palmarum</i> (Zelevor)	+	+	Endemic
49.	<i>Rattus stoicus</i> (Miller)	+	—	Endemic
50.	<i>Rattus taciturnus</i> (Miller)	+	—	Endemic
51	<i>Rattus pulliventer</i> (Miller)	—	+	Endemic
52.	<i>Rattus burrus</i> (Miller)	—	+	Endemic
53.	<i>Rattus burrus</i> (Miller)	—	+	Endemic
54.	<i>Rattus burrescens</i> (Miller)	—	+	Endemic
55.	House Mouse <i>Mus musculus castaneus</i> (Waterhouse)	+	—	
MARINE MAMMALS				
56.	Dugong <i>Dugong dugon</i> (Miller)	+	+	
57.	Common Dolphin <i>Delphinus delphis</i> Linnaeus	+	+	
58.	False Killer <i>Pseudorca crassidens</i> (Owen)	+	+	

*Elephants, Sambar, feral cats and goats are not included in the list.

APPENDIX IX

B. LIST OF BIRDS RECORDED FROM ANDAMAN AND NICOBAR ISLANDS

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
ORDER PROCELLARIIFORMES				
Family Hydrobatidae				
1	Wilson's Storm Petrel <i>Oceanites oceanicus oceanicus</i> (Kuhl)	+	—	Occurrence doubtful
ORDER PELECANIFORMES				
Family Phaethontidae				
2.	Redtailed Tropic-bird <i>Phaethon rubricauda rubricauda</i> Boddaert	—	+	Occurrence doubtful
3.	Longtailed Tropic-bird <i>Phaethon lepturus lepturus</i> Daudin	+	+	Straggler
Family Pelecanidae				
4.	Grey or Spottedbilled Pelican <i>Pelecanus philippensis philippensis</i> Gmelin	—	+	Accidental in the Nicobar Islands
ORDER CICONIIFORMES				
Family Ardeidae				
5.	Eastern Grey Heron <i>Ardea cinerea rectirostris</i> Gould	+	+	Resident
6.	Eastern Purple Heron <i>Ardea purpurea manilensis</i> Meyen	+	+	Resident
7.	Eastern Large Egret <i>Ardea alba modesta</i> J. E. Gray	+	—	Resident
8.	Andaman Little Green Heron <i>Ardeola striatus spodiogaster</i> (Sharpe)	+	+	Endemic
9.	Indian Pond Heron or Paddybird <i>Ardeola grayii grayii</i> (Sykes)	+	+	Resident
10.	Chinese Pond Heron <i>Ardeola bacchus</i> (Bonaparte)	+	—	Resident

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
11.	Cattle Egret <i>Bubulcus ibis coromandus</i> (Boddaert)	+	+	Resident
12.	Smaller Egret <i>Egretta intermedia intermedia</i> (Wagler)	+	+	Resident
13.	Little Egret <i>Egretta garzetta garzetta</i> (Linnaeus)	+	+	Resident
14.	Eastern Reef Heron <i>Egretta sacra</i> (Gmelin)	+	+	Resident
15.	Night Heron <i>Nycticorax nycticorax nycticorax</i> (Linnaeus)	+	+	Resident
16.	Nicobar Tiger Bittern <i>Gorsachius melanolophus minor</i> Hachisuka	+	—	Endemic
17.	Chestnut Bittern <i>Ixobrychus cinnamomeus</i> (Gmelin)	+	+	Resident
18.	Yellow Bittern <i>Ixobrychus sinensis</i> (Gmelin)	+	+	Resident

ORDER ANSERIFORMES

Family Anatidae

19.	Lesser Whistling Teal <i>Dendrocygna javanica</i> (Horsfield)	+	+	Resident
20.	Common Teal <i>Anas crecca crecca</i> Linnaeus	+	+	Winter Visitor
21.	Andaman Grey Teal <i>Anas gibberifrons albogularis</i> (Hume)	+	—	Endemic
22.	Spotbill Duck <i>Anas poecilorhyncha poecilorhyncha</i> Forster	+	—	One record after cyclon
23.	Cotton Teal <i>Nettapus coromandelianus</i> (Gmelin)	+	—	Straggler

ORDER FALCONIFORMES

Family Accipitridae

24.	Andaman Blackcrested Baza <i>Aviceda leuphotes andamanica</i> Abdulali & Grubh	+	—	Endemic
25.	Pariah Kite <i>Milvus migrans govinda</i> Sykes	+	—	Vagrant

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
26.	Brahminy Kite <i>Haliastur indus indus</i> (Boddaert)	+	—	Resident
27.	Car Nicobar Shikra <i>Accipiter badius butleri</i> (Gurney)	—	+	Endemic
28.	Katchal Shikra <i>Accipiter badius obsoletus</i> (Richmond)	—	+	Endemic
29.	Horsfield's Goshawk <i>Accipiter soloensis</i> (Horsfield)	+	+	Winter Visitor
30.	Asiatic Sparrow-Hawk <i>Accipiter nisus nisosimilis</i> (Tickell)	+	—	Winter Visitor
31.	Eastern Sparrow-Hawk <i>Accipiter virgatus gularis</i> (Temminck & Schlegel)	+	+	Resident
32.	Andaman Crested Hawk-Eagle <i>Spizaetus cirrhatus andamanensis</i> Tytler	+	—	Endemic
33.	Whitebellied Sea Eagle <i>Haliaeetus leucogaster</i> (Gmelin)	+	+	Resident
34.	Pale Harrier <i>Circus macrourus</i> (S. G. Gmelin)	+	—	Winter Visitor
35.	Montagu's Harrier <i>Circus pygargus</i> (Linnaeus)	+	—	Winter Visitor
36.	Marsh Harrier <i>Circus aeruginosus aeruginosus</i> (Linnaeus)	+ ?	+	Winter Visitor
37.	Andaman Pale Serpent Eagle <i>Spilornis cheela davisoni</i> Hume	—	+	Endemic
38.	Nicobar Crested Serpent Eagle <i>Spilornis cheela minimus</i> Hume	—	+	Endemic
39.	Malayan Serpent Eagle <i>Spilornis cheela malayensis</i> (Swann)	—	+	Resident
40.	Great Nicobar Crested Serpent Eagle <i>Spilornis klossi</i> Richmond	—	+	Endemic
41.	Andaman Dark Serpent Eagle <i>Spilornis elgini</i> Blyth	+	—	Endemic
42.	Osprey <i>Pandion haliaetus haliaetus</i> (Linnaeus)	+	—	Winter Visitor
Family Falconidae				
43.	Eastern Peregrine Falcon <i>Falco peregrinus japonensis</i> Gmelin	+ ?	+ ?	Winter Visitor
44.	Shaheen Falcon <i>Falco peregrinus peregrinator</i> Sundevall	—	+	Resident

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
45.	European Kestrel <i>Falco tinnunculus tinnunculus</i> Linnaeus	+	—	Winter Visitor
46.	East Himalayan Kestrel <i>Falco tinnunculus interstinctus</i> McClelland	+	—	Winter Visitor
ORDER GALLIFORMES				
Family Megapodiidae				
47.	North Nicobar Megapode <i>Megapodius freycinet nicobariensis</i> Blyth	+	? +	Endemic
48.	South Nicobar Megapode <i>Megapodius freycinet abbotti</i> Oberholser	—	+	Endemic
Family Phasianidae				
49.	South Indian Grey Partridge <i>Francolinus pondicerianus pondicerianus</i> (Gmelin)	+	—	Introduced
50.	Nicobar Bluebreasted Quail <i>Coturnix chinensis trinkutensis</i> (Richmond)	—	+	Endemic
51	Common Peafowl <i>Pavo cristatus</i> Linnaeus	+	—	Introduced
ORDER GRUIFORMES				
Family Turnicidae				
52.	Indian Yellowlegged Button Quail <i>Turnix tanki tanki</i> Blyth	+	+	Resident
Family Rallidae				
53.	Andaman Bluebreasted Banded Rail <i>Rallus striatus obscurior</i> (Hume)	+	+	Endemic
54.	Andaman Banded Crake <i>Rallina canningi</i> (Blyth)	+	—	Endemic
55.	Eastern Baillon's Crake <i>Porzana pusilla pusilla</i> (Pallas)	+	—	Winter Visitor
56.	Andaman Whitebreasted Waterhen <i>Amaurornis phoenicurus insularis</i> Sharpe	+	+	Endemic

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
57.	Water Cock <i>Gallicrex cinerea</i> (Gmelin)	+	+	Resident
58.	Malay Moorhen <i>Gallinula chloropus orientalis</i> Horsfield	+	—	Resident
59.	Indian Purple Moorhen <i>Porphyrio porphyrio poliocephalus</i> (Latham)	+	+	Resident
ORDER CHARADRIIFORMES				
Family Dromadidae				
60.	Crab Plover <i>Dromas ardeola</i> Paykull	+	+	Winter Visitor
Family Burhinidae				
61	Australian Stone Plover <i>Esacus magnirostris magnirostris</i> (Vieillot)	+	—	Resident
Family Glareolidae				
62.	Collared Pratincole <i>Glareola pratincola maldivarum</i> J.R. Forster	+	+	Winter Visitor
Family Charadriidae				
63.	Greyheaded Lapwing <i>Vanellus cinereus</i> (Blyth)	+	—	Straggler
64.	Grey Plover <i>Pluvialis squatarola</i> (Linnaeus)	+	+	Winter Visitor
65.	Eastern Golden Plover <i>Pluvialis dominica fulva</i> (Gmelin)	+	+	Winter Visitor
66.	Large Sand Plover <i>Charadrius leschenaultii leschenaultii</i> Lesson	+	+	Winter Visitor
67.	Eastern Sand Plover <i>Charadrius asiaticus veredus</i> Gould	+	—	Vagrant
68.	European Little Ringed Plover <i>Charadrius dubius curonicus</i> Gmelin	+	—	Winter Visitor
69.	Pamir's Lesser Sand Plover <i>Charadrius mongolus atrifrons</i> Wagler	+	+	Winter Visitor

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
70.	Whimbrel <i>Numenius phaeopus phaeopus</i> (Linnaeus)	+	+	Winter Visitor
71.	Eastern Whimbrel <i>Numenius phaeopus variegatus</i> (Scopoli)	+	—	Winter Visitor
72.	Eastern Curlew <i>Numenius arquata orientalis</i> C. L. Brehm	+	+	Winter Visitor
73.	Bartailed Godwit <i>Limosa lapponica baueri</i> Naumann	—	+	Winter Visitor
74.	Common Redshank <i>Tringa totanus totanus</i> (Linnaeus)	+	+	Winter Visitor
75.	Greenshank <i>Tringa nebularia</i> (Gunner)	+	+	Winter Visitor
76.	Green Sandpiper <i>Tringa ochropus</i> Linnaeus	+	—	Winter Visitor
77.	Wood Sandpiper <i>Tringa glareola</i> Linnaeus	+	—	Winter Visitor
78.	Terek Sandpiper <i>Tringa terek</i> (Latham)	+	+	Winter Visitor
79.	Common Sandpiper <i>Tringa hypoleucos hypoleucos</i> Linnaeus	+	+	Winter Visitor
80.	Turnstone <i>Arenaria interpres interpres</i> (Linnaeus)	+	+	Winter Visitor
81.	Pintail Snipe <i>Gallinago stenura</i> (Bonaparte)	+	+	Winter Visitor
82.	Fantail Snipe <i>Gallinago gallinago gallinago</i> (Linnaeus)	+	—	Winter Visitor
83.	Great Snipe <i>Gallinago media</i> (Latham)	+	—	Winter Straggler
84.	Jack Snipe <i>Gallinago minima</i> (Brunnich)	+	—	Winter Visitor
85.	Eastern Knot <i>Calidris tenuirostris</i> (Horsfield)	+	—	Winter Visitor
86.	Eastern Little Stint <i>Calidris ruficollis</i> (Pallas)	+	+	Winter Visitor
87.	Little Stint <i>Calidris minuta</i> (Leisler)	+	—	Winter Visitor
88.	Temminck's Stint <i>Calidris temminckii</i> (Leisler)	+	—	Winter Visitor
89.	Longtoed Stint <i>Calidris subminuta</i> (Middendorff)	+	—	Winter Visitor

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
90.	Curlew-Sandpiper <i>Calidris testacea</i> (Pallas)	+	+	Winter Visitor
91	Broadbilled Sandpiper <i>Limicola falcinellus falcinellus</i> (Pontoppidan)	+	+	Winter Visitor
Family Laridae				
92.	Whitewinged Black Tern <i>Chlidonias leucopterus</i> (Temminck)	+	—	Winter Visitor
93.	Javan Gullbilled Tern <i>Gelochelidon nilotica affinis</i> (Horsfield)	+	—	Winter Visitor
94.	Rosy Tern <i>Sterna dougallii korustes</i> (Hume)	+	—	Resident
95.	Eastern Blacknaped Tern <i>Sterna sumatrana sumatrana</i> Raffles	+	+	Resident
96.	Philippine Brownwinged Tern <i>Sterna anaethetus anaethetus</i> Scopoli	+	—	Resident
97.	Sooty Tern <i>Sterna fuscata nubilosa</i> Sparrman	+	? —	Resident
98.	Indian Lesser Crested Tern <i>Sterna bengalensis bengalensis</i> Lesson	+	+	Resident
99.	Noddy Tern <i>Anous stolidus pileatus</i> (Scopoli)	+	+	Resident
100.	Whitecapped Noddy <i>Anous tenuirostris worcesteri</i> (McGregor)	+	—	Straggler

ORDER COLUMBIFORMES

Family Columbidae

101	Andaman Greyfronted Green Pigeon <i>Treron pompadora chloroptera</i> Blyth	+	+	Endemic
102.	Nicobar Green Imperial Pigeon <i>Ducula aenea nicobarica</i> (Pelzeln)	—	+	Endemic
103.	Andaman Green Imperial Pigeon <i>Ducula aenea andamanica</i> Abdulali	+	—	Endemic
104.	Pied Imperial Pigeon <i>Ducula bicolor</i> (Scopoli)	+	+	Resident
105.	Andaman Wood Pigeon <i>Columba palumboides</i> (Hume)	+	+	Endemic

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
106.	Nicobar Cuckoo-Dove <i>Macropygia rufipennis rufipennis</i> Blyth	—	+	Endemic
107.	Andaman Cuckoo-Dove <i>Macropygia rufipennis andamanica</i> Abdulali	+	—	Endemic
108.	Burmese Red Turtle Dove <i>Streptopelia tranquebarica humilis</i> (Temminck)	+	—	Resident
109.	Andaman Emerald Dove <i>Chalcophaps indica maxima</i> Hartert	+	—	Endemic
110.	Nicobar Emerald Dove <i>Chalcophaps indica augusta</i> Bonaparte	—	+	Endemic
111	Nicobar Pigeon <i>Caloenas nicobarica nicobarica</i> (Linnaeus)	+	+	Endemic

ORDER PSITTACIFORMES

Family Psittacidae

112.	Large Andaman Parakeet <i>Psittacula eupatria magnirostris</i> (Ball)	+	—	Endemic
113.	Andaman Redbreasted Parakeet <i>Psittacula alexandri abbotti</i> (Oberholser)	+	—	Endemic
114.	Blyth's Nicobar Parakeet <i>Psittacula caniceps</i> (Blyth)	—	+	Endemic
115.	Andaman Redcheeked Parakeet <i>Psittacula longicauda tytleri</i> (Hume)	+	—	Endemic
116.	Nicobar Redcheeked Parakeet <i>Psittacula longicauda nicobarica</i> (Gould)	—	+	Endemic
117.	Indian Lorikeet <i>Loriculus vernalis vernalis</i> (Sparman)	+	+	Resident

ORDER CUCULIFORMES

Family Cuculidae

118.	Indian Cuckoo <i>Cuculus micropterus micropterus</i> Gould	+	+	Resident
119.	Cuckoo <i>Cuculus canorus canorus</i> Linnaeus	+	—	A passage migrant (in November)
120.	Himalayan Cuckoo <i>Cuculus saturatus saturatus</i> Blyth	+	+	Winter Visitor

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
121.	Emerald Cuckoo <i>Chalcites maculatus</i> (Gmelin)	+	+	Winter Visitor
122.	Violet Cuckoo <i>Chalcites xanthorhynchus xanthorhynchus</i> (Horsfield)	+	+	Resident
123.	Andaman Koel <i>Eudynamys scolopacea dolosa</i> Ripley	+	+	Endemic
124.	Andaman Crow-Pheasant <i>Centropus andamanensis</i> Beavan	+	+	Endemic

ORDER STRIGIFORMES

Family Strigidae

125.	Andaman Barn Owl <i>Tyto alba deroepstorffii</i> (Hume)	+	—	Endemic
126.	Andaman Scops Owl <i>Otus balli</i> (Hume)	+	—	Endemic
127.	Andaman Lesser Scops Owl <i>Otus scops modestus</i> (Walden)	+	—	Endemic
128.	Nicobar Lesser Scops Owl <i>Otus scops nicobaricus</i> (Hume)	—	+	Endemic
129.	Hume's Brown Hawk-Owl <i>Ninox scutulata obscura</i> Hume	+	+	Endemic
130.	Andaman Brown Hawk-Owl <i>Ninox affinis affinis</i> Beavan	+	—	Endemic
131	Nicobar Brown Hawk-Owl <i>Ninox affinis isolata</i> Baker	—	+	Endemic

ORDER CAPRIMULGIFORMES

Family Caprimulgidae

132.	Andaman Longtailed Nightjar <i>Caprimulgus macrurus andamanicus</i> Hume	+	—	Endemic
133.	Japanese Jungle Nightjar <i>Caprimulgus indicus jotaka</i> Temminck & Schlegel	+	—	Reported as migrating in- dividual at Sea off Andaman Is.

APPENDIX IXB (Contd.)

Sl No.	Name of the species	Distribution		Remarks
		A	N	
ORDER APODIFORMES				
Family Apodidae				
134.	Hume's Swiftlet <i>Collocalia brevirostris innominata</i> Hume	+	—	Resident
135.	Andaman Greyrumped Swiftlet <i>Collocalia fuciphaga inexpectata</i> Hume	+	+	Endemic
136.	Whitebellied Swiftlet <i>Collocalia esculenta affinis</i> Beavan	+	+	Endemic
137.	Brownthroated Spinetail Swift <i>Chaetura gigantea indica</i> Hume	+	—	Resident
138.	Eastern Swift <i>Apus apus pekinensis</i> (Swinhoe)	+	—	A passage migrant
ORDER CORACIIFORMES				
Family Alcedinidae				
139.	Indian Small Blue Kingfisher <i>Alcedo atthis bengalensis</i> Gmelin	+	+	Resident
140.	Andaman Blue-eared Kingfisher <i>Alcedo meninting rufigaster</i> Walden	+	—	Endemic
141.	Andaman Threetoed Forest Kingfisher <i>Ceyx erithacus macrocarus</i> Oberholser	+	+	Endemic
142.	Andaman Storkbilled Kingfisher <i>Pelargopsis capensis osmastoni</i> (Baker)	+	—	Endemic
143.	Nicobar Storkbilled Kingfisher <i>Pelargopsis capensis intermedia</i> Hume	—	+	Endemic
144.	Andaman Ruddy Kingfisher <i>Halcyon coromanda mizorhina</i> (Oberholser)	+	—	Endemic
145.	Andaman Whitebreasted Kingfisher <i>Halcyon smyrnensis saturator</i> Hume	+	+	Endemic
146.	Blackcapped Kingfisher <i>Halcyon pileata</i> (Boddaert)	+	+	Resident
147.	Andaman Whitecollared Kingfisher <i>Halcyon chloris davisoni</i> Sharpe	+	—	Endemic
148.	Nicobar Whitecollared Kingfisher <i>Halcyon chloris occipitalis</i> (Blyth)	—	+	Endemic
Family Meropidae				
149.	Andaman Chestnutheaded Bee-eater <i>Merops leschenaulti andamanensis</i> Marien	+	—	Endemic

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
150.	Bluetailed Bee-eater <i>Merops philippinus</i> Linnaeus	+	+	Winter Visitor
	Family Coraciidae			
151	Andaman Broadbilled Roller <i>Eurystomus orientalis gigas</i> Stresemann	+	—	Endemic
	Family Upupidae			
152.	Tibetan Hoopoe <i>Upupa epops saturata</i> Lonnberg	+	—	Winter Visitor
	Family Bucerotidae			
153.	Narcondam Hornbill <i>Rhyticeros narcondami</i> (Hume)	+	—	Endemic
	ORDER PICIFORMES			
	Family Picidae			
154.	Andaman Black Woodpecker <i>Dryocopus javensis hodgei</i> (Blyth)	+	—	Endemic
155.	Andaman Fulvousbreasted Pied Woodpecker <i>Picoides macei andamanensis</i> (Blyth)	+	—	Endemic
	ORDER PASSERIFORMES			
	Family Pittidae			
156.	Nicobar Hooded or Greenbreasted Pitta <i>Pitta sordida abbotti</i> Richmond	—	+	Endemic
	Family Hirundinidae			
157.	Eastern Swallow <i>Hirundo rustica gutturalis</i> Scopoli	+	+	Winter Visitor
158.	Javan House Swallow <i>Hirundo tahitica javanica</i> Sparrman	+	—	Resident
	Family Laniidae			
159.	Brown Shrike <i>Lanius cristatus cristatus</i> Linnaeus	+	+	Winter Visitor

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
160.	Philippine Shrike <i>Lanius cristatus lucionensis</i> Linnaeus	+	+	Winter Visitor
	Family Oriolidae			
161	Andaman Blacknaped Oriole <i>Oriolus chinensis andamanensis</i> Tytler	+	—	Endemic
162.	Nicobar Blacknaped Oriole <i>Oriolus chinensis macrourus</i> Blyth	—	+	Endemic
163.	Andaman Blackheaded Oriole <i>Oriolus xanthornus reubeni</i> Abdulali	+	—	Endemic
	Family Dicruridae			
164.	Grey Drongo <i>Dicrurus leucophaeus leucogenis</i> (Walden)	+	—	Straggler
165.	Whitecheeked Grey Drongo <i>Dicrurus leucophaeus salangenis</i> Reichenow	+	—	Winter Visitor
166.	Large Andaman Drongo <i>Dicrurus andamanensis dicruriformis</i> (Hume)	+	—	Endemic
167.	Small Andaman Drongo <i>Dicrurus andamanensis andamanensis</i> Tytler	+	—	Endemic
168.	Andaman Rackettailed Drongo <i>Dicrurus paradiseus otiosus</i> (Richmond)	+	—	Endemic
169.	Nicobar Rackettailed Drongo <i>Dicrurus paradiseus nicobariensis</i> (Baker)	+	—	Endemic
	Family Artamidae			
170.	Whitebreasted Swallow-Shrike <i>Artamus leucorhynchus humei</i> Stresemann	+	—	Endemic
171	Andaman Glossy Stare <i>Aplonis panayensis tytleri</i> (Hume)	+	+	Endemic
172.	Andaman Whiteheaded Myna <i>Sturnus erythropygius andamanensis</i> (Tytler)	+	—	Endemic
173.	Nicobar Whiteheaded Myna <i>Sturnus erythropygius erythropygius</i> (Blyth)	—	+	Endemic
174.	Katchal Whiteheaded Myna <i>Sturnus erythropygius katchalensis</i> (Richmond)	—	+	Endemic
175.	Daurian Myna <i>Sturnus sturninus</i> (Pallas)	? +	+	Straggler

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
176.	Rosy Pastor <i>Sturnus roseus</i> (Linnaeus)	+	—	Winter Visitor
177.	Common Myna <i>Acridotheres tristis tristis</i> (Linnaeus)	+	—	Introduced
178.	Andaman Hill Myna <i>Gracula religiosa andamanensis</i> (Beavan)	+	+	Endemic
Family Corvidae				
179.	Andaman Tree Pie <i>Dendrocitta bayleyi</i> Tytler	+	—	Endemic
180.	Eastern Jungle Crow <i>Corvus macrorhynchus levaillanti</i> Lesson	+	—	Resident
Family Campephagidae				
181	Andaman Large Cuckoo-Shrike <i>Coracina novaehollandiae andamana</i> (Neumann)	+	—	Endemic
182.	Barred Cuckoo-Shrike <i>Coracina striata dobsoni</i> (Ball)	+	—	Endemic
183.	Nicobar Pied Cuckoo-Shrike <i>Coracina nigra davisoni</i> (Kloss)	+	+	Endemic
184.	Andaman Scarlet Minivet <i>Pericrocotus flammeus andamanensis</i> Beavan	+	—	Endemic
185.	Ashy Minivet <i>Pericrocotus divaricatus divaricatus</i> (Raffles)	+	—	Winter Straggler
186.	Eastern Small Minivet <i>Pericrocotus cinnamomeus vividus</i> Baker	+	—	Resident
Family Irenidae				
187.	Fairy Bluebird <i>Irena puella puella</i> (Latham)	+	+	Resident
Family Pycnonotidae				
188.	Andaman Blackheaded Bulbul <i>Pycnonotus atriceps fuscoflavescens</i> (Hume)	+	—	Endemic
189.	Andaman Redwhiskered Bulbul <i>Pycnonotus jocosus whistleri</i> Deignan	+	—	Endemic

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
190.	Nicobar Bulbul <i>Hypsipetes nicobariensis</i> Moore	—	+	Endemic
	Family Muscicapidae			
191.	Olive Flycatcher <i>Rhinomyias brunneata nicobarica</i> Richmond	+	+	Winter Visitor
192.	Brown Flycatcher <i>Muscicapa latirostris</i> Raffles	+	+	Winter Visitor
193.	Eastern Redbreasted Flycatcher <i>Muscicapa parva albicilla</i> Pallas	+	—	Winter Visitor
194.	Nicobar Paradise Flycatcher <i>Terpsiphone paradisi nicobarica</i> Oates	+	+	Endemic
195.	Andaman Blacknaped Flycatcher <i>Hypothymis azurea tytleri</i> (Beavan)	+	—	Endemic
196.	Car Nicobar Blacknaped Flycatcher <i>Hypothymis azurea idiochroa</i> Oberholser	—	+	Endemic
197.	Nicobar Blacknaped Flycatcher <i>Hypothymis azurea nicobarica</i> Bianchi	—	+	Endemic
198.	Mangrove Whistler <i>Pachycephala grisola</i> (Blyth)	+	—	Resident
199.	Andaman Palefooted Bush Warbler <i>Cettia pallidipes osmastoni</i> (Hartert)	+	—	Endemic
200.	Malaya Streaked Fantail Warbler <i>Cisticola juncidis malaya</i> Lynes	—	+	Resident
201.	Pallas's Central Asian Grasshopper Warbler <i>Locustella certhiola centralasiae</i> Sushkin	+	+	Winter Visitor
202.	Pallas's Siberian Grasshopper Warbler <i>Locustella certhiola rubescens</i> Blyth	+	—	Winter Visitor
203.	Streaked Grasshopper Warbler <i>Locustella lanceolata</i> (Temminck)	+	+	Winter Visitor
204.	Thickbilled Warbler <i>Acrocephalus aedon aedon</i> (Pallas)	+	+	Winter Visitor
205.	Manipur Dusky Leaf Warbler <i>Phylloscopus fuscatus mariae</i> Ripley	+	—	Winter Visitor
206.	Siberian Dusky Leaf Warbler <i>Phylloscopus fuscatus fuscatus</i> (Blyth)	+	—	Winter Visitor
207.	Siberian Yellowbrowed Leaf Warbler <i>Phylloscopus inornatus inornatus</i> (Blyth)	+	—	Winter Visitor
208.	Arctic Leaf Warbler <i>Phylloscopus borealis borealis</i> (Blasius)	+	—	Winter Visitor

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
209.	Largebilled Leaf Warbler <i>Phylloscopus magnirostris</i> Blyth	+	—	Winter Visitor
210.	Eastern Greenish Leaf Warbler <i>Phylloscopus trochiloides trochiloides</i> (Sundevall)	+	—	Winter Visitor
211.	Palelegged Leaf Warbler <i>Phylloscopus tenellipes</i> Swinhoe	—	+	Migrant
212.	Northern Bluethroat <i>Erithacus svecicus svecicus</i> (Linnaeus)	+	—	Winter Visitor
213.	Siberian Blue Chat <i>Erithacus cyane cyane</i> (Pallas)	+	—	Straggler
214.	Andaman Magpie-Robin <i>Copsychus saularis andamanensis</i> Hume	+	—	Endemic
215.	Andaman Shama <i>Copsychus malabaricus albiventris</i> (Blyth)	+	—	Endemic
216.	East Siberian Collared Bushchat <i>Saxicola torquata stejnegeri</i> (Parrot)	+	—	Winter Visitor
217.	Indian Blue Rock Thrush <i>Monticola solitarius pandoo</i> (Sykes)	+	+	Winter Visitor
218.	Siberian Ground Thrush <i>Zoothera sibirica sibirica</i> (Pallas)	+	—	Winter Visitor
219.	Whitebrowed Ground Thrush <i>Zoothera sibirica davisoni</i> (Hume)	+	—	One record from Narcondam Island
220.	Andaman Ground Thrush <i>Zoothera citrina andamanensis</i> (Walden)	+	—	Endemic
221.	Nicobar Ground Thrush <i>Zoothera citrina albogularis</i> (Blyth)	—	+	Endemic
222.	Dark Thrush <i>Turdus obscurus</i> Gmelin	+	—	Straggler
Family Motacillidae				
223.	Richard's Pipit <i>Anthus novaeseelandiae richardi</i> Vieillot	+	—	Winter Visitor
224.	Blyth's Pipit <i>Anthus godlewskii</i> (Taczanowski)	+	—	Winter Visitor
225.	Redthroated Pipit <i>Anthus cervinus</i> (Pallas)	+	+	Winter Visitor
226.	Forest Wagtail <i>Motacilla indica</i> Gmelin	+	—	Winter Visitor

APPENDIX IXB (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
227.	Greyheaded Yellow Wagtail <i>Motacilla flava thunbergi</i> Billberg	+	+	Winter Visitor
228.	Shorttailed Greyheaded Yellow Wagtail <i>Motacilla flava simillima</i> Hartert	+	—	Winter Visitor
229.	Blueheaded Yellow Wagtail <i>Motacilla flava beema</i> (Sykes)	—	+	Winter Visitor
230.	Grey Wagtail <i>Motacilla cinerea cinerea</i> (Tunstall)	+	+	Winter Visitor
231	Whitefaced Pied Wagtail <i>Motacilla alba leucopsis</i> Gould	+	—	Winter Visitor
Family Dicaeidae				
232.	Andaman Plaincoloured Flowerpecker <i>Dicaeum concolor virescens</i> Hume	+	—	Endemic
Family Nectariniidae				
233.	Andaman Olivebacked Sunbird <i>Nectarinia jugularis andamanica</i> (Hume)	+	—	Endemic
234.	Nicobar Olivebacked Sunbird <i>Nectarinia jugularis klossi</i> (Richmond)	—	+	Endemic
235.	Car Nicobar Olivebacked Sunbird <i>Nectarinia jugularis proselia</i> (Oberholser)	—	+	Endemic
236.	Nicobar Yellowbacked Sunbird <i>Aethopyga siparaja nicobarica</i> Hume	—	+	Endemic
Family Zosteropidae				
237.	Nicobar White-eye <i>Zosterops palpebrosa nicobarica</i> Blyth	+	+	Endemic
Family Ploceidae				
238.	Indian House Sparrow <i>Passer domesticus indicus</i> Jardine & Selby	+	—	Introduced
239.	Andaman Whitebacked Munia <i>Lonchura striata fumigata</i> (Walden)	+	—	Endemic
240.	Nicobar Whitebacked Munia <i>Lonchura striata semistriata</i> (Hume)	—	+	Endemic
Family Emberizidae				
241	Yellowbreasted Bunting <i>Emberiza aureola aureola</i> Pallas	—	+	Winter Visitor
242.	Little Bunting <i>Emberiza pusilla</i> Pallas	+	—	Winter Visitor

APPENDIX IX

C. LIST OF REPTILES RECORDED FROM ANDAMAN AND NICOBAR ISLANDS

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
ORDER CROCODILIA				
1	Estuarine Crocodile <i>Crocodilus porosus</i> Schneider	+	+	
ORDER TESTUDINES				
2.	Hawksbill Turtle <i>Eretmochelys imbricata squamata</i> Agassiz	+	+	Marine
3.	Green Sea Turtle <i>Chelonia mydas</i> (Linnaeus)	+	+	Marine
4.	Malayan Box Tortoise <i>Cuora amboinensis</i> (Daudin)	—	+	
5.	Southern Flapshelled Turtle <i>Lissemys punctata granosa</i> (Schoeff)	+	—	
ORDER SQUAMATA				
6.	Curltailed Gecko <i>Cyrtodactylus rubidus</i> (Blyth)	+	+	Endemic
7.	Forest Day Gecko <i>Cnemaspis kandiana</i> (Kelaart)	+	+	
8.	Spotted Gecko <i>Gehyra mutilata</i> (Wiegmann)	+	+	
9.	House Gecko <i>Hemidactylus frenatus</i> Schlegel	+	+	
10.	Gecko <i>Hemiphyllodactylus typus typus</i> Bleeker	—	+	
11	Asian Tokay <i>Gekko gekko</i> (Linnaeus)	+	+	
12.	Smith's Gecko <i>Gekko smithi</i> Gray	+	—	
13.	Stripeheaded Gecko <i>Lepidodactylus lagubris</i> Dumiron & Bibron	+	+	
14.	Gecko <i>Cosymbotus platyurus</i> (Schneider)	—	+	
15.	Flying Gecko <i>Ptychozoon kuhli</i> Stejneger	—	+	

APPENDIX IXC (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
16.	Andaman Day Gecko <i>Phelsuma andamanense</i> Blyth	+	+	Endemic
17.	Green Forest Lizard <i>Goniocephalus subcristatus</i> (Blyth)	+	+	Endemic
18.	Green Garden Lizard <i>Calotes cristatellus</i> (Kuhl)	—	+	
19.	Spotted Garden Lizard <i>Calotes jubetus</i> (Dum. & Bibr.)	—	+	
20.	Tiwari's Garden Lizard <i>Calotes danieli</i> Tiwari & Biswas	—	+	Endemic
21.	Common Garden Lizard <i>Calotes versicolor</i> (Daudin)	+	—	
22.	Whitelipped Garden Lizard <i>Calotes mystaceus</i> Dum. & Bibr.	+	+	
23.	Garden Lizard <i>Calotes calotes</i> (Linnaeus)	—	+	
24.	Andaman Garden Lizard <i>Calotes andamanensis</i> Boulenger	+	—	Endemic
25.	Lined Skink <i>Mabuya multifasciata</i> (Kuhl)	—	+	
26.	Andaman Skink <i>Mabuya andamanensis</i> Smith	+	—	Endemic
27.	Skink <i>Mabuya rudis</i> Rafinesque	—	+	
28.	Tytler's Skink <i>Mabuya tytleri</i> (Theobald)	+	—	Endemic
29.	Brown Skink <i>Mabuya rugifera</i> (Stoliczka)	—	+	
30.	Nicobar Tree Skink <i>Dasia nicobarensis</i> Biswas & Sanyal	—	+	Endemic
31.	Tree Skink <i>Dasia olivacea</i> Gray	+	+	
32.	Brownbacked Skink <i>Sphenomorphus maculatum</i> (Blyth)	+	+	
33.	Peter's Skink <i>Sphenomorphus quadrivittatum</i> (Peter)	—	+	
34.	Whitestriped Skink <i>Scincella macrotympanum</i> (Stoliczka)	+	—	Endemic
35.	Blackstriped Skink <i>Riopa bowringi</i> (Gunther)	+	—	

APPENDIX IXC (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
36.	New Guinea Limbless Skink <i>Dibamus novae-guineae</i> Dum. & Bibr.	—	+	
37.	Andaman Water Monitor <i>Varanus salvator andamanensis</i> Deraniyagala	+	+	Endemic
38.	Common Blind Snake <i>Typhlops braminus</i> (Daudin)	+	+	
39.	Oat's Blind Snake <i>Typhlops oatesi</i> Boulenger	+	—	Endemic
40.	Andaman Blind Snake <i>Typhlops andamanensis</i> Stoliczka	+	—	Endemic
41.	Sunbeam Snake <i>Xenopeltis unicolor</i> Reinwardt	+	—	
42.	Reticulated Python <i>Python reticulatus</i> (Schneider)	—	+	
43.	Elephant Trunk Snake <i>Acrochordus granulatus</i> (Schneider)	—	+	
44.	Indian Rat Snake <i>Ptyas mucosus</i> (Linnaeus)	+	—	
45.	Andaman Banded Kukri <i>Oligodon woodmasoni</i> (Sclater)	+	+	Endemic
46.	Yellowstriped Trinket <i>Elaphe flavolineata</i> (Schlegel)	+	+	
47.	Redtailed Trinket <i>Elaphe oxycephala</i> (Boie)	+	+	
48.	Green Trinket <i>Elaphe prasina</i> (Blyth)	+	—	
49.	Nicobar Stripedneck Snake <i>Liopeltis nicobariensis</i> (Stoliczka)	—	+	Endemic
50.	Andaman Bronze Back <i>Dendrelaphis ahaetulla andamanensis</i> (Anderson)	+	+	Endemic
51.	Green Tree Snake <i>Dendrelaphis cyanochloris</i> (Wall)	+	+	
52.	Tiwari's Bronze Back <i>Dendrelaphis humayuni</i> Tiwari & Biswas	—	+	
53.	Daudin's Bronze Back <i>Dendrelaphis tristis</i> (Daudin)	—	+	
54.	Biswas's Wolf Snake <i>Lycodon tiwarii</i> Biswas & Sanyal	+	+	Endemic
55.	Brown Wolf Snake <i>Lycodon aulicus capucinus</i> Boie	+	—	Endemic

APPENDIX IXC (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
56.	Blackheaded Hill Snake <i>Sibynophis bistrigatus</i> (Gunther)	—	+	
57.	Nicobar Water Snake <i>Xenochrophis nicobarensis</i> Sclater	—	+	Endemic
58.	Common Water Snake <i>Xenochropis piscator piscator</i> Smith	+	—	
59.	<i>Xenochropis piscator melanzostus</i> Boie	+	—	
60.	Boie's Water Snake <i>Xenochropis trianguligera</i> (Boie)	—	+	
61.	Striped Keelback <i>Amphiesma stolata</i> (Linnaeus)	+	—	
62.	Flying Snake <i>Chrysopelea paradisi</i> Boie	+	—	
63.	Boie's Cat Snake <i>Boiga dendrophilus</i> (Boie)	—	+	
64.	Andaman Cat Snake <i>Boiga andamanensis</i> Wall	+	—	Endemic
65.	Smith's Cat Snake <i>Boiga ochracea walli</i> Smith	+	+	
66.	Dogfaced Water Snake <i>Cerberus rhynchops</i> (Schneider)	+	+	
67.	Whitebellied Water Snake <i>Fordonia leucobalia</i> (Schlegel)	—	+	
68.	Banded Swamp Snake <i>Cantoria violacea</i> Girard	+	—	
69.	King Cobra <i>Ophiophagus hannah</i> (Cantor)	+	—	
70.	Monocellate Cobra <i>Naja naja kaouthia</i> Lesson	+	—	
71.	Andaman Banded Krait <i>Bungarus andamanensis</i> Biswas & Sanyal	+	—	Endemic
72.	Amphibious Sea Snake <i>Laticauda laticauda</i> (Linnaeus)	—	+	
73.	Colubrine Amphibious Sea Snake <i>Laticauda colubrina</i> (Schneider)	+	+	
74.	Cantor's Pit Viper <i>Trimeresurus cantori</i> (Blyth)	+	+	Endemic
75.	Andaman Pit Viper <i>Trimeresurus purpureomaculatus andersoni</i> Theobald	+	+	Endemic

APPENDIX IXC (Contd.)

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
76.	Whitelipped Pit Viper <i>Trimeresurus albolabris</i> Gray	+	+	
77.	Brownspeckled Pit Viper <i>Trimeresurus labialis</i> (Fitzinger)	+	+	Endemic

APPENDIX IX

D. LIST OF AMPHIBIA RECORDED FROM ANDAMAN AND NICOBAR ISLANDS

Sl. No.	Name of the species	Distribution		Remarks
		A	N	
ORDER ANURA				
Family Ranidae				
1	Brown Frog <i>Rana doriae</i> Boulenger	+	—	
2.	Paddy Frog <i>Rana limnocharis limnocharis</i> Wiegmann	+	+	
3.	Andaman Paddy Frog <i>Rana limnocharis andamanensis</i> Stoliczka	+	—	
4.	Nicobar Frog <i>Rana nicobarensis</i> (Stoliczka)	—	+	
5.	Saltwater Frog <i>Rana cancrivora</i> Gravenhorst	+	—	
Family Microhylidae				
6.	Boulenger's Narrowmouthed Frog <i>Microhyla inornata</i> Boulenger	+	—	
7.	Pillai's Narrowmouthed Frog <i>Microhyla chakrapani</i> Pillai	+	—	Endemic
Family Rhacophoridae				
8.	Tree Frog <i>Rhacophorus leucomystax</i> (Kuhl)	—	+	
Family Bufonidae				
9.	Indian Toad <i>Bufo melanostictus</i> Schneider	+	+	
10.	Nicobar Toad <i>Bufo camortensis</i> Mansukhani and Sarkar	—	+	Endemic

APPENDIX X

LIST OF RARE AND ENDANGERED SPECIES OF THESE ISLANDS INCLUDED IN SCHEDULE I OF THE INDIAN WILDLIFE (PROTECTION) ACT

<i>Sl. No.</i>	<i>Original Sl. No. of Schedule I</i>	<i>Name of the species</i>
Part I : MAMMALS		
1	1	Andaman Wild Pig (<i>Sus scrofa andamanensis</i>)
2.	6A	Crabeating Macaque (<i>Macaca fascicularis umbrosa</i>)
3.	7	Dugong (<i>Dugong dugon</i>)
Part II : AMPHIBIANS AND REPTILES		
1	1c	Estuarine Crocodile (<i>Crocodilus porosus</i>)
2.	4	Green Sea Turtle (<i>Chelonia mydas</i>)
3.	5	Hawksbill Turtle (<i>Eretmochelys imbricata</i>)
4.	14A	Water Monitor (<i>Varanus salvator</i>)
Part III : BIRDS		
1	1	Andaman Teal (<i>Anas gibberifrons albogularis</i>)
2.	4A	Hawks (Accipitridae)
3.	7	Large Falcons (<i>Falco peregrinus</i>)
4.	9	Narcondam Hornbill (<i>Rhyticeros narcondami</i>)
5.	10	Nicobar Megapode (<i>Megapodius freycinet</i>)
6.	10A	Nicobar Pigeon (<i>Caloenas nicobarica</i>)
7.	10B	Osprey or Fisheating Eagle (<i>Pandion haliaetus</i>)
8.	11	Peafowl (<i>Pavo cristatus</i>)
9.	16	Whitebellied Sea Eagle (<i>Haliaeetus leucogaster</i>)

APPENDIX XI

LIST OF NATIONAL PARKS AND WILDLIFE SANCTUARIES IN ANDAMAN AND NICOBAR ISLANDS

<i>Sl. No.</i>	<i>Name</i>	<i>Location</i>	<i>Area (in sq km)</i>	<i>Important fauna</i>
1	Middle Butten National Park	Andaman	0.44	—
2.	North Butten National Park	Andaman	0.44	—
3.	South Butten National Park	Andaman	0.04	—
4.	Saddle Peak National Park	Andaman	32.54	—
5.	Barren Island Wildlife Sanctuary	Andaman	8.10	Green Pigeon, migratory waders
6.	Narcondam Island Wildlife Sanctuary	Andaman	6.81	Narcondam Hornbill, Imperial and Green Pigeons
7.	North Reef Island Wildlife Sanctuary	Andaman	3.40	Duck, Heron, migratory waders
8.	Mount Harriet Wildlife Sanctuary	Andaman	46.62	Variety of birds
9.	South Sentinel Island Wildlife Sanctuary	Andaman	1.61	Waders, Pigeon, Coconut Crab

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