

MAMMALS of SOUTH-EAST ASIA

Charles M. Francis

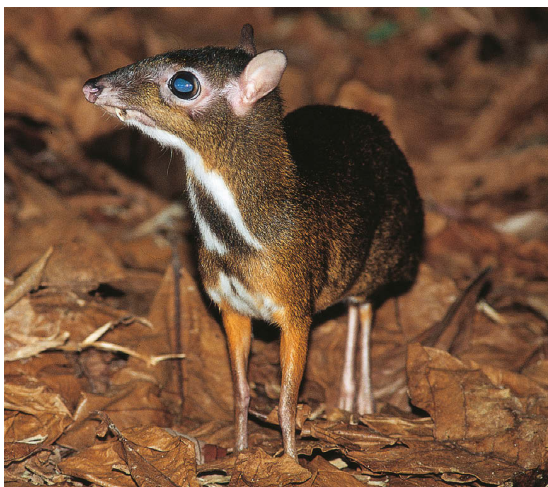


POCKET PHOTO GUIDE

B L O O M S B U R Y

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INTRODUCTION

Mammals are familiar to everybody, as they include domestic animals such as dogs, cats, horses and cattle as well as, of course, ourselves – humans. However, fewer people know about the tremendous diversity of wild mammals. Over 4,400 species occur around the world. South-east Asia is particularly rich in mammals with over 500 species in the region covered by this book, including wild cattle, elephants, rhinoceros, wild pigs, wild cats, bears, monkeys and many smaller species such as rodents, shrews and bats.

Watching mammals presents more challenges than watching birds, since many species are small and nocturnal, and difficult to observe and identify. In South-east Asia, even larger mammals can be difficult to find, as their natural habitats are thick tropical forests. Nevertheless, a keen observer can locate many mammals. The loud morning songs of gibbons ring across the forests in many areas. Many monkeys and squirrels can be seen during a walk through forests or gardens. Civets, flying squirrels, lorises and other mammals may be found during a night walk through lowland rainforest with a spotlight. Larger mammals such as cattle, tapirs, or bears can be located by tracks or signs, or seen from hides near salt licks. Bats can often be seen at roost in caves, or at dusk as they hunt for insects.

This book provides an introduction to the wild mammals of South-east Asia, including the countries of Myanmar (Burma), Thailand, Laos, Vietnam, Cambodia, Malaysia, Singapore, Brunei, and western Indonesia including Sumatra, Java, Bali, and Borneo. Most species of larger mammals are included, which should enable identification of many animals encountered in these groups. For smaller animals, such as rodents, insectivores and bats, only representative species are included, because there is not space in a book of this size to describe all species.

Much remains to be learned about mammals in South-east Asia. Since 1990, several new species of large mammals have been discovered that were previously unknown to science, including Saola, Large-antlered Muntjac, Puhoat Muntjac and Annamite Muntjac from the Annamite mountains in Laos and Vietnam, and Leaf Muntjac from Northern Myanmar. Many more species of small mammals have also been discovered, including a new striped rabbit, several new rodents and many new bats. Many areas have never been thoroughly surveyed for small mammals, and no doubt further species await discovery.

Unfortunately, this tremendous diversity of mammals is also at risk. Several larger mammals are threatened with imminent extinction. Schomburgk's Deer, which formerly occurred in lowland swamps in Thailand, is believed to be already extinct. The continued existence of Kouprey is in doubt, and the newly discovered Saola is under heavy hunting pressure in Laos and Vietnam. The Asian One-horned Rhinoceros is now considered extinct in Vietnam, while a tiny population of about 50 survives in western Java. The Asian Two-horned Rhinoceros has disappeared from much of its range. Many primates, including Orangutans and Proboscis Monkeys, have experienced substantial declines. Tiger populations in many regions are probably too small to be sustainable.

The greatest single threat to most Asian mammals is loss of habitat. Until recently, most of South-east Asia was covered in continuous forest. The island of Borneo formed one of the largest continuous blocks of tropical rainforest in the world. Now, much of this has been cleared or

severely degraded. Less than 10% of the land area in most jurisdictions is set aside as parks or reserves, and much forest that remains has been heavily logged. Some large mammals can adapt to logged forest, especially those that traditionally fed in forest openings or grassy areas along river banks. However, many smaller mammals with more specialized habitat requirements may be unable to adapt. Furthermore, logged forests are vulnerable to encroachment and fires. In the past two decades, numerous large forest fires have burned millions of hectares of logged forest in Borneo and Sumatra. These burned-over forests, even if protected from further disturbance, will take decades or even centuries to recover. Some areas where seed sources are gone may never regain their original diversity.

Another threat to many mammals is hunting. Although some mammals have been traditionally hunted for centuries, growing human populations and the widespread availability of guns have greatly increased hunting pressure. At the same time, with loss of habitat, many mammal populations have become smaller and more vulnerable to hunting. Development of roads and agricultural areas around forest reserves has increased opportunities for poachers, and the demand for parts of some species, such as rhinoceros horns, pangolin scales, or tiger bones, for so-called 'medicinal' purposes, has greatly increased the profits associated with illegal hunting. Unless drastic efforts are made to curtail the illegal wildlife trade, many larger mammals will become extinct in the near future.

The loss of a species represents an irreversible loss of millions of years of evolution. Humans have a moral obligation to prevent the extinction of any species, both for the sake of the animals themselves, and so that our children and their children can see and appreciate them. Also, wild mammals represent an inestimable genetic resource. The wild ancestors of many economically important domestic mammals are still found in Asia today – but they are also threatened. Wild populations could prove invaluable for improving domestic stocks through cross-breeding programmes, or for developing new domestic breeds – if they are preserved. Finally, many wild mammals are of great ecological importance. For example, several species of fruit bats are key pollinators of such economically important trees as durians, kapok and mangroves. Other bats, as well as squirrels and many larger mammals including monkeys, bears and even elephants, are important seed dispersers and play a key role in forest regeneration. Insectivorous bats eat hundreds of millions of insects every night. Wild carnivores help control rodent populations, thus maintaining ecological balance.

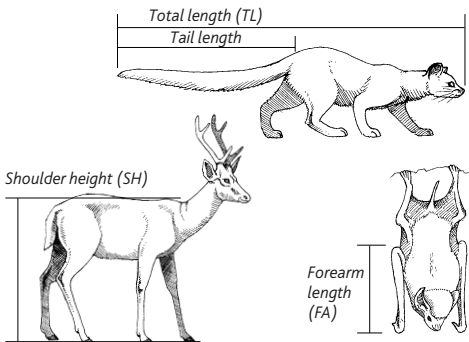
The continued existence of this tremendous diversity of native mammal species in South-east Asia, and the natural habitats where they live, is dependent on the stewardship and care of the people living in the region. One of the primary goals of this book is to increase awareness of the fascinating diversity of wildlife in the region, in the hope that improved understanding will lead to better care and conservation of wild animals into the future.

HOW TO USE THIS BOOK

This guide has been compiled to help with identification and increase understanding of mammals in South-east Asia. It should allow

identification of many of the larger mammals to species, and most smaller mammals to family or genus.

Small thumbnail sketches are included to help determine and locate the group to which a mammal might belong. Brief descriptions are provided for each order. Photographs and text descriptions should be examined and compared to check identification. The approximate size of each mammal is indicated by one of three measurements. For most mammals, the total length (TL) from the tip of the nose to the tip of the tail (excluding long hairs) is given. Note that with their back hunched or tail curled, many animals may look shorter. For most larger mammals, shoulder height (SH) is given, while for bats, the forearm measurement (FA) is provided.



WHAT IS A MAMMAL?

Mammals are warm-blooded vertebrates distinguished by having fur or hair, and by giving birth to live young (usually), which they suckle on milk. Some mammals may be confused with other animals. Whales and dolphins have virtually no hair, and swim like fish, but are warm-blooded, give birth to live young which they suckle on milk, and breathe air. They are thought to have descended from ancestors that fed on land and walked on four legs. Bats are sometimes confused with birds because they can fly, but they have fur, not feathers, teeth instead of a beak, and in all other ways are clearly mammals. Pangolins superficially resemble reptiles because of their scales, but these are formed from densely packed hairs, and pangolins share all the other features of mammals.

CLASSIFICATION AND NAMES

Mammal species are classified into genera (plural of genus), families and orders. All mammals have a scientific name, used by scientists throughout the world, indicating the genus and species. These names follow strict rules, but may change based on new information. English names are less well standardized and vary among sources. Scientific and English names used in this book have been largely updated to follow Francis (2008) *A Field Guide to the Mammals of South-East Asia*, published by Bloomsbury.

KEY TO COLOURED TABS



Pangolins



Moonrats



Shrews



Treeshrews



Colugos



Fruit Bats



Insectivorous
bats



Loris & Tarsier



Monkeys



Gibbons &
Orangutan



Wild dogs



Bears



Otters, martens
& badgers



Civets



Mongoose



Cats



Dolphin &
Dugong



Elephants



Tapir &
rhinoceros



Wild pigs



Deer



Cattle



Saola



Squirrels



Flying squirrels



Mice & rats



Porcupines



Rabbits

GLOSSARY

Aquatic Living in or near water.

Arboreal Adapted for life in trees.

Carnivorous Eating mainly meat, and preying on other animals for food.

Diurnal Active mainly during daylight hours.

Endemic Found only in a particular region, and nowhere else in the world.

Frugivorous Feeding mainly on fruit.

Insectivorous Feeding mainly on insects.

Nocturnal Active mainly at night.

Omnivorous Feeding on both animals and plant material.

Pedicle The bony base of a deer's antler

Terrestrial Active mainly on the ground.

Tine A branch on the antler of a deer.

MAMMALS IN SOUTH-EAST ASIA

The distribution of mammals in South-east Asia is influenced by climate, vegetation, altitude and history. The region covered by this book can be divided into three major subregions. In the north, the Himalayan subregion, with cooler climates and higher altitudes includes the northern tip of Myanmar. Several mammal species of northern Asia and Europe inhabit this area, but are not emphasised in this book, as they are more typical of other regions.

The Indochinese subregion includes the remainder of Myanmar, as well as Laos, Vietnam, Cambodia and Thailand except the extreme south. It has monsoon climates, with a distinct dry and wet season. Many forests, including dry dipterocarp forest, are semi-deciduous with some trees losing their leaves in the dry season. Wet evergreen forest occurs in the hills and some coastal areas.

The Sunda subregion includes peninsular Thailand (south of the Isthmus of Kra), Malaysia, Sumatra, Java and Borneo. The Sunda region is generally much wetter, with a monthly average of at least 100 mm of rain throughout the year, leading to growth of rich lowland rainforests. Although this subregion is divided into islands, the seas between them are relatively shallow and were exposed as dry land whenever sea levels dropped during ice ages, most recently about 10,000 years ago. As a result, the islands share many plants and animals. The division from the Indochinese region is very marked botanically, with 375 Sundaic genera of plants reaching their northern limit, and 200 genera of Indochinese plants reaching their southern limit there. Several mammal species show similar limits in this region.

Tall lowland rainforests, that once covered most of the Sunda subregion and part of the Indochinese region, are the richest habitats for mammals. Hill and montane forest supports fewer species, although some mammals are more common in hill forests, such as Siamang, Serow, Saola and several squirrels and rats. Monsoon forests support a distinctive fauna, although they are generally less rich than rainforests. Limestone outcrops occur throughout the region, and often have extensive cave systems that shelter large colonies of bats. A few rodents and other mammals, including Francois's Langur, are restricted to limestone areas. Coastal mangrove forests are important for some species. Only a few mammals have adapted to the open scrub and field habitats that are left following destruction of the original forests.

HOW TO FIND MAMMALS

Seeing many diurnal mammals, such as squirrels, monkeys and apes, requires only a visit to the appropriate habitat, a good pair of binoculars, and some patience. The most suitable binoculars are 7–8 x magnification with an ocular (the lens at the end) at least 35 to 40 mm in diameter (e.g. 7 x 35 or 8 x 40). Smaller binoculars, although easy to carry, are not bright enough to see details inside the forest.

Monkeys, gibbons and some tree squirrels can be found by their loud calls or by the crashing of branches as they move from tree to tree. Ground squirrels and treeshrews can be found by listening for rustling leaves or looking for movement near to the ground. Larger mammals can be found by their footprints and other signs. A boat trip along a river in the late afternoon or early morning can be a good

way to see monkeys such as Proboscis Monkeys and macaques, and possibly deer and other large mammals coming to drink.

Nocturnal mammals can be found by walking quietly along trails or roadsides at night, with a headlamp or spotlight to look for eyeshine. Many animals are less wary of people at night, and it is often possible to get much closer than during the day. Species such as lorises, flying squirrels and some civets can be seen in the treetops, while deer, civets and cats may be seen on the ground. Larger mammals such as pigs, deer or elephants can sometimes be found by driving along secondary roads through forest, with a spotlight. Some reserves have hides where visitors can watch over a water hole or salt lick for mammals.

Bats can often be observed at roost, or as they fly out from their roosts in houses, trees or caves, but only a few species can be identified in flight. Bat researchers use various methods to capture bats for identification, including mist nets and harp traps. A 'bat detector' transforms the echolocation calls of insectivorous bats to frequencies that humans can hear, or displays their calls on computer screens. This enables researchers to study and identify bats without disturbing them, in the same way birders can identify birds by their songs. Most shrews, mice and rats must be captured for identification, using a variety of small mammal traps. To capture a full range of species, traps must be set from ground level to the treetops, using different baits. Experience is needed to use traps successfully without injuring the animals, and in most areas, special permits are needed to capture mammals.

Do not be discouraged if you cannot always identify what you see. The appearance of an animal may change depending on the angle and the lighting, and many species vary in colour, both within a population and among areas. Even experts cannot identify some mammals in the field without capturing and studying them. It is still possible to enjoy the experience of seeing a wild mammal even if it cannot be precisely identified. This experience can be greatly enhanced by observing its behaviour, watching it interact with other animals and its environment.

WHERE TO FIND MAMMALS

Numerous parks, nature reserves and other protected areas have been designated in each country in the region, many of which still support a good variety of mammals. In this book, it is only possible to highlight a few of the more important or more accessible reserves or parks in the region. This selection is inevitably rather arbitrary, and many other sites may also be good for mammals.

Myanmar currently has 39 designated or proposed protected areas, but access to many is limited, especially to foreign tourists. The map highlights four of the most important for mammals. After years of isolation, all are becoming more accessible to foreigners.

Thailand has 60 national parks and 31 designated wildlife sanctuaries. Khao Yai is one of the most accessible sites, still supporting many primates, elephants and other types of mammals. Huai Kha Kheng and Kaeng Krachan are among the largest and richest areas for mammals.

Laos has 29 proposed or designated National Biodiversity Conservation Areas (NBCA), covering most habitats in the country, although visitor access is limited. One of the most important is



- | | |
|--------------------------------------|--|
| 1 Hkakaborazi National Park | 17 Endau Rompin |
| 2 Tamanthi Wildlife Sanctuary | 18 Kuala Selangor |
| 3 Chatthin Wildlife Sanctuary | 19 Kinabalu Park |
| 4 Alaungdaw Kathapa National Park | 20 Sepilok |
| 5 Huai Kha Khaeng Wildlife Sanctuary | 21 Kinabatangan River |
| 6 Khao Yai National Park | 22 Danum Valley |
| 7 Kaeng Krachan National Park | 23 Batu Apoi Forest Reserve |
| 8 Nakai Nam-Theun | 24 Mulu National Park |
| 9 Na Hang Nature Reserve | 25 Lanjak-Entimau Wildlife Sanctuary |
| 10 Cat Ba National Park | 26 Samunsam Wildlife Sanctuary |
| 11 Cuc Phuong National Park | 27 Tanjung Puting National Park |
| 12 Cat Tien National Park | 28 Gunung Leuser National Park |
| 13 Kulem Promtep | 29 Bukit Barisan Selatan National Park |
| 14 Bokor | 30 Ujung Kulon National Park |
| 15 Taman Negara | 31 Baluran National Park |
| 16 Krau Wildlife Reserve | |

Nakai-Nam Theun NBCA, with Annamite endemics such as Saola, Large-antlered Muntjac and Red-shanked Douc.

Cambodia has a variety of parks and wildlife reserves, but many have not been surveyed recently, and the status of their wildlife is unknown. Bokor is relatively accessible and still supports many mammals, though some larger species are now rare. Kulen Promtep in the north may still support Kouprey (if they are not yet extinct) and Eld's Deer, as well as most other large mammals.

Vietnam has a range of reserves and protected areas. Cat Tien and Cat Loc have a wide range of mammals, including Black-shanked Douc, Gaur, Buff-cheeked Gibbon and rhinos. Cuc Phuong has Delacour's Langur, Owston's Palm Civet and many bats. Cat Ba is the only site for the golden-headed Cat Ba Langur. Na Hang is the last remaining site for Tonkin Snub-nosed Monkey.

The largest and most accessible park in **Peninsular Malaysia** is Taman Negara with a full complement of lowland forest species including tapirs, elephants and Gaur. Other large areas of lowland forest include Krau and Endau-Rompin. Coastal species such as Sundaic Silvered Langur and Smooth Otter can be seen at Kuala Selangor.

In **Sabah**, East Malaysia, Mount Kinabalu has all of the hill and montane species in Borneo, as well as some lowland species. Danum Valley has excellent facilities for visitors and researchers, with mature lowland forest and a rich variety of mammals. Sepilok is readily accessible from Sandakan, with semi-wild Orangutans and other mammals. Kinabatangan Wildlife Sanctuary supports Proboscis Monkeys, elephants, otters and wild cats, and nearby Gomantong Caves has spectacular colonies of bats. In **Sarawak**, Lanjak-Entimau is one of the largest and most important wildlife areas in Malaysia. Niah and Mulu both have spectacular limestone caves with numerous bats. Samunsam Wildlife Sanctuary is a good site for Proboscis Monkeys.

Brunei has extensive remaining forest. The most accessible is in Batu Apoi, where there is a fully-equipped research station.

In **Kalimantan**, Indonesian Borneo, there are over 70 proposed or designated protected areas, but many are not readily accessible or have been extensively damaged by illegal logging or fires. One of the best remaining is Tanjung Puting with coastal swamp and lowland forest and good populations of Orangutans and Proboscis Monkeys.

The richest area in **Java** is Ujung Kulon, with lowland and swamp forest and the last remaining population of Lesser One-horned Rhinoceros, as well as Leopards, gibbons and many other species. Baluran has dry forest and grasslands with Banteng and Javan Rusa.

In **Sumatra**, Gunung Leuser is one of the largest and richest parks, with most mammals including montane species. Bukit Barisan Selatan has a variety of habitats with large mammals including Tigers, elephants and tapirs.

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