



NATURE'S PLAYGROUND

A place of mystery that has long nourished the imagination of naturalists and travellers alike, the island of Borneo cannot fail to captivate with its incredible array of flora and fauna, writes Nick Garbutt



Few places conjure images of darkness and mystery like the island of Borneo. Charles Darwin once described it as “one great wild untidy luxuriant hothouse made by nature for herself”, which is an incredibly apt description given the wealth and variety of fauna and flora on the island. There are mammals, lizards, snakes and frogs that ‘fly’, fish that ‘walk’ on mud, monkeys that dive and swim, plants that eat insects and flowers the size of dustbin lids. Borneo may not have the reputation and glamorous image of other top wildlife destinations around the world, but it offers the ecotourist a wealth of opportunities to experience the thrill of the island’s forests and the remarkable species that live there.



Far left: orangutan offspring are weaned at four, sometimes later. Left: descending Mt. Kinabalu. Below: a mossy tree frog



SABAH

Without question Sabah has some of the richest, most diverse and best developed parks and reserves in Borneo. This is not coincidence, but rather a consequence of the towering presence of Mount Kinabalu, the roof of Borneo. From its summit at 4,095 metres all the way down through tracts of rainforest to pristine coral-fringed off-shore islands, there are different habitats each supporting a tremendous array of intriguing species. This, coupled with relatively easy access, good infrastructure and quality tourist facilities, make Sabah the obvious first choice for visitors.

Situated within two hours drive of the state capital Kota Kinabalu, **Kinabalu Park** is often the first place many visitors experience. The mountain rises like a citadel from the lowlands of north Borneo and has captured imaginations for centuries. It is a high altitude ‘island’ surrounded by lowland ‘seas’ of forest and this isolation has led to the evolution of some unusual endemic species.

Today, climbing the mountain is hugely popular and is achievable by most in two days and one overnight on the mountain. On most days, the numbers reaching the summit approach 50 to 100: over 30,000 now climb the mountain annually. But the park has so much more to offer and most

visitors go to enjoy its biological riches. As many as 6,000 plant species occur on the mountain, including over 1,000 different orchids and more than one third of all the islands’ pitcher plants (genus *Nepenthes*). There are also more than 600 species of butterflies, and over 320 species of birds.

MAPPED OUT

Well-maintained trails close to the Park HQ offer ample opportunity to explore, with the open areas and forest edges good places for bird watching. After dark these trails can also be explored for reptiles, frogs and invertebrates, including the beautiful endemic Kinabalu forest gecko.

For those who climb the mountain, the summit trail is also good for bird watching as well as mammals like the mountain tree shrews and mountain ground squirrels that often scavenge the scraps from climbers’ picnics. The majority of pitcher plants flourish between 2,000 and 3,300 metres, with species such as *Nepenthes tentaculata*, *N. villosa* and *N. kinabaluensis* close to the trail.

After a night at the rest house at Panar Laban, at 3,270 metres, the trek to the top begins in the early hours. The granite plateau is bare and bleak and ➔

Essential Borneo




WHO: SARAH WIGHT,
DIVE WORLDWIDE
WHERE: LAYANG LAYANG,
SABAH

There are a number of world-class dive sites in Sabah, but the small island of Sipadan is the most famous. It sits atop a 650 metre abyss in the Celebes Sea and this deep water brings large pelagic species such as manta and eagle rays, scalloped hammerhead sharks and numerous turtles. However, I prefer the hidden gem of Layang Layang (Swallows Reef), lying 300km north-west of Kota Kinabalu and open from March to August. Vast walls of coral provide a home for a huge array of species, including larger ones such as barracuda, big eye trevally and Pacific green and hawksbill turtles.

Those seeking the thrill of diving with sharks won’t be disappointed: scalloped hammerhead, grey reef, leopard, silvertip and thresher sharks have all been encountered.

www.diveworldwide.com



Sabah's longest river forms a flood plain ecosystem of almost unparalleled richness

stretches through piles of boulders towards the summit pyramid of Low's Peak. The final scramble to the top is fulfilling and breathtaking. Reached at dawn, sunrise on the summit of Borneo is a sight never forgotten.

From Kinabalu most visitors head across to the east side of Sabah to Sandakan and visit the world renowned **Sepilok Orang Utan Sanctuary**. Since opening in 1964, over 100 individuals have been returned to their forest home. Visitors enjoy close encounters at feeding time, when individuals not fully capable of self-sufficiency return for a meal.

While here it is also worth visiting the adjacent **Rainforest Discovery Centre** on the edge of the reserve, which has a canopy walkway and also offers night walks on Mondays, Wednesdays and Fridays.

Also accessible from Sandakan is **Selingan Island**, a tiny patch of sand off the north east coast, which is part of the **Turtle Islands Marine Park**. Along with two neighbouring islands, it is one of the region's major sea turtle breeding sites. Throughout the year, and particularly between April and October, large numbers of green turtles and, to a lesser extent, hawksbill turtles, come ashore on most nights to lay their eggs. Wardens patrol the beaches and collect all the eggs for incubation. Each night newly hatched baby turtles are also released back into the sea. Visitors have the

opportunity to watch by torchlight turtles excavating their nests and laying their clutches and observe the hatchlings being released. Further to the east lies **Lower Kinabatangan Wildlife Sanctuary**, one of Borneo's most diverse and rewarding wildlife areas. It can be reached either by road or boat from Sandakan.

RIVER ADVENTURE

The Kinabatangan is Sabah's longest river and its lower reaches form a flood plain ecosystem of almost unparalleled richness. There are tracts of riparian forest, stranded ox-bow lakes, nipah swamp and mangroves, all of which support such varied wildlife as orangutans, proboscis monkeys, Bornean pygmy elephants and a vast array of birds, reptiles and amphibians.

The villages of Sukau and Bilit, some 80 to 100km up river from the coast, are centres for wildlife tourism, with a number of comfortable lodges. The experiences here are among the most memorable in Borneo, as the wildlife has become accustomed to boat traffic.

But this is far from being a pristine wilderness. Perhaps as much as 90 per cent of the forest has already been cleared to make way for palm oil plantations and other crops. The conservation vision is to create corridors where natural forests along the river are maintained and fragments re-connected, so

that people, wildlife, eco-tourism and forest industries can thrive and support one another.

For that real 'into the heart of Borneo' experience, there is no place like **Danum Valley**, arguably Borneo's premier wildlife location. Situated within an enormous forest concession, over 400 square km have been set aside as a reserve. **Borneo Rainforest Lodge** lies at its heart, some 80km off the main road from Lahad Datu. Located on the banks of the Danum River among a swathe of pristine forest, it offers access to a network of well laid out trails that follow the course of the river and forest interior. These allow easy access and provide ample opportunity to discover some of the forest's amazing biodiversity.

Within a stone's throw of the lodge it is possible to encounter wild orangutans, red leaf monkeys and Bornean gibbons. Bird watching is also excellent; open areas around the lodge and along trails offer chances to see mixed feeding flocks and, if there is a fruiting tree noisy rhinoceros hornbills are conspicuous.

Early mornings are the best time to enjoy the extra dimension offered by the fabulous canopy walkway. From the treetops there is a spectacular alternative perspective, where mist hangs in the valley and clings to the crowns of trees, with only the tallest standing proud above the white cloak. After dark, night walks and vehicle rides offer a window into the



*Clockwise from far left:
dawn breaks on the
river; leopard cats are
only the size of domestic
cats; Danum Valley's
canopy walkway; pygmy
elephant young and its
mother; the striking
western tarsier*

CONFLICT OF INTERESTS

How the shrinking habitat of the Bornean pygmy elephant is affecting their right to roam



secretive world of the forest's nocturnal creatures – greater mouse deer, giant flying squirrels and culugo are often seen. There is also a reasonable chance of seeing both slow lorises and western tarsiers.

Two hours east of Lahad Datu is **Tabin Wildlife Reserve**. Less well-known than Danum, it is most notable as the last major stronghold of the Sumatran rhinoceros on Borneo, and there are also significant numbers of Bornean pygmy elephants and tembadau (wild cattle), although these animals primarily inhabit the core area that is inaccessible to visitors. The peripheral areas do support plenty of other wildlife and even in areas where forest adjoins plantations there is much to see.

The nocturnal drives can be rewarding, as Tabin is perhaps the best place to see some of the island's elusive carnivores, especially leopard cats and, for the very fortunate, clouded leopards.

The recent establishment of the Bornean pygmy elephant as a distinct lineage has dramatically elevated their importance in conservation terms because they constitute what is termed an 'evolutionary significant unit'. This has happened at a time when shrinking available habitat is bringing them into more conflict with humans.

Current estimates suggest the total number of elephants in Borneo is around 1,600, which are concentrated in an area stretching from Sebakung in north east Kalimantan, through to Maliau, Danum, Deramakot, Kinabatangan and Tabin on the eastern side of Sabah. The Lower Kinabatangan Wildlife Sanctuary holds one of the largest single populations (perhaps 150 to 200 elephants) and regular interaction with the people of the area highlights the problem.

The Lower Kinabatangan is now a mosaic of fragmented forest blocks and narrow interlinking corridors following the course of the river, which is surrounded primarily by palm oil plantations and local villages, where crops such as bananas, tapioca, papaya and sweet potatoes are grown. This has resulted in the blocking of traditional elephant migration routes, forcing the elephants to pass through plantations where they eat the young palms and are harried by plantation owners. The elephants also raid crops close to local villages, where they are often encouraged to move on with the use of fire crackers.

Worse are instances of direct persecution. Snares have caused horrific injuries to some individuals and there have also been reports of local people killing elephants for their ivory, skin and meat in Lower Kinabatangan and Tabin.

Such persecution is forcing the elephants into increasingly narrow corridors. In the past, herds of more than 15 animals were rare, but gatherings exceeding 60 elephants are being encountered in some areas today. The Lower Kinabatangan Wildlife Sanctuary currently covers an area of 26,000 hectares. However, estimates suggest forest clearance is continuing: between 2000 and 2005 perhaps 20 per cent of remaining forests in the area have gone. To better understand the movements of elephants in the region, staff from the Sabah Wildlife Department and WWF's Asian Rhino and Elephant Strategy (AREAS) have now radio collared some individuals and are able to track their movements. It is hoped this work will identify those remaining areas of forest that are critical to the elephants.

Essential Borneo

WHO: **NICKI HOLLAMBY,**
AUDLEY TRAVEL BORNEO
SPECIALIST
WHERE: **GUNUNG MULU,**
SARAWAK

While Sabah enjoys more of the limelight, Sarawak has just as much to offer the wildlife enthusiast.

A trip to Gunung Mulu National Park offers one of Borneo's true wilderness experiences. There are few places that match such an incredible combination of habitats and Mulu has something for everyone, including giant caves with ceilings encrusted with tens of thousands of swiftlet nests. At dusk, wait at Deer Cave and watch an estimated three million wrinkle-lipped bats emerge to feed. The true adventurer should trek up Mount Api to view the Pinnacles. The hill forest ecosystem here is home to an incredible diversity of birdlife: listen out for the distinctive whistle of a mountain serpent eagle hunting prey.

www.audleytravel.com

SARAWAK

Sarawak has an extensive network of parks and reserves, some of which are relatively easy to access. While they do not generally offer wildlife watching comparable in quality and diversity to those in Sabah (Sarawak has suffered deforestation and hunting to a far greater degree), there are still some superb locations here.

Bako National Park offers an intoxicating mixture of stunning coastal scenery, teeming forests and abundant wildlife. This, in combination with its proximity to Kuching and easy access, make it arguably Sarawak's premier wildlife location for the first-time visitor.

Situated on a peninsula jutting into the South China Sea, it is relatively small, yet extremely diverse, with rocky coasts, secluded beaches, mangrove forest, dipterocarp forest, peat-swamp forest and heath forest (kerangas). There is a network of trails through most parts of the park, that allow the visitor to experience the best that each of these various habitats has to offer. Many of the trails through forested areas are boardwalks.

Bako is one of the best places to see proboscis monkeys and they are regularly encountered in the mangrove forests, as well as swamp forest and also on the edge of dipterocarp forest. They

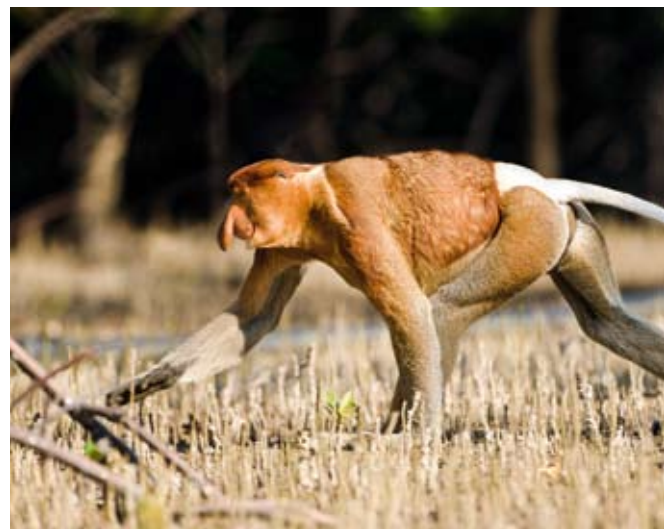
can sometimes be seen foraging on the mud flats in the mangroves at low tide. Long-tailed macaques and silvered langurs are also easily seen. Other mammals that are seen on night walks from time-to-time include colugos, slow loris, pangolins and mouse deer.

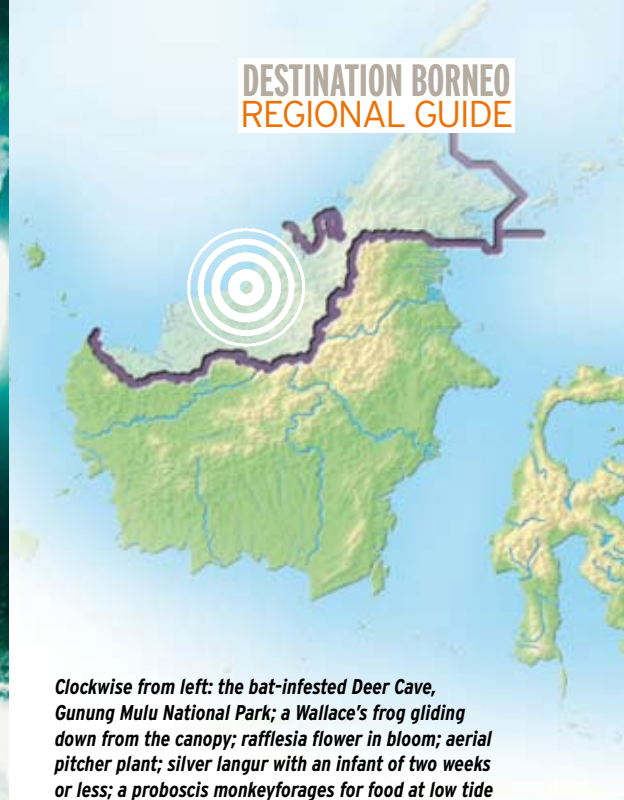
BLOOMING LOVELY

With such a variety of habitats, the park's flora is rich and diverse. In the heath forest large numbers of pitcher plants can be seen with large colonies and clusters of *Nepenthes ampullaria* growing on the ground, and also larger aerial species such as *Nepenthes rafflesiana* and *Nepenthes gracilis*.

Situated in the far north of the state, close to Brunei, is **Gunung Mulu**, Sarawak's largest national park (52,865 hectares). An area dominated by peaks, the park's major claim to fame actually lies beneath: one of the largest limestone cave systems in the world.

The scale of these caves is bewildering. They include the world's largest cave passage (Deer Cave), the world's largest natural chamber (Sarawak Chamber, capable of housing 47 jumbo jets) and the longest cave in South East Asia





DESTINATION BORNEO REGIONAL GUIDE

Clockwise from left: the bat-infested Deer Cave, Gunung Mulu National Park; a Wallace's frog gliding down from the canopy; rafflesia flower in bloom; aerial pitcher plant; silver langur with an infant of two weeks or less; a proboscis monkey forages for food at low tide

(Clearwater Cave, 108km in length). To date over 300km of underground cave passages have been surveyed and this is thought to represent only 30 to 40 per cent of the full extent. Visiting the mouth of Deer Cave at dusk is an amazing spectacle, as in excess of three million bats pour out of the entrance.

Mulu also offers much more than simply wildlife; there is rock climbing, jungle trekking, kayaking, mountain biking, and the opportunity to interact with fascinating local people, including Iban, Berawan and Penan, Sarawak's last nomadic tribe.

Rafflesia are one of the iconic species from Borneo and **Gunung Gading National Park** on Sarawak's south west coast is one of the few places you might see this amazing flower that can be over 70cm in diameter.

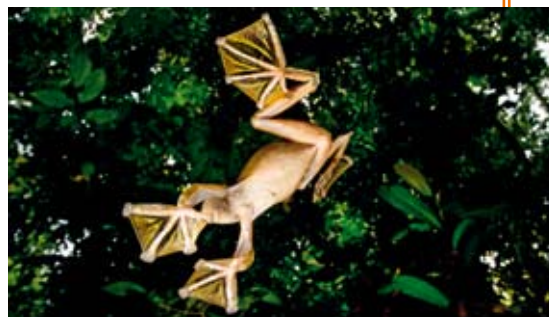
There is a network of boardwalks through the accessible areas of forest where the rafflesia grow. If there are blooms deeper into the forest park staff may be able to escort visitors. Before travelling, check with the parks department to see whether any of the flowers are in bloom.



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FLIGHTS OF FANTASY

Why is Borneo home to so many flying and gliding animals?



The forests of Borneo harbour a greater diversity of flying and gliding animals than any other, with flying squirrels, flying frogs, flying snakes, flying lizards, flying geckos and the bizarre colugo or flying lemur. But is this simply a coincidence or a quirk of evolutionary fate?

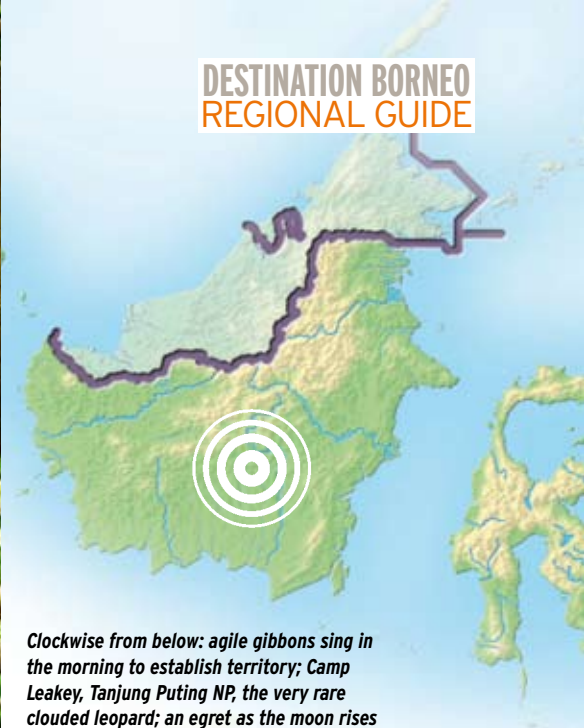
Recent advances in technology have allowed scientists to begin exploring the rainforest canopy – considered by many the last great frontier on land – for the first time. From such lofty vantages, perspectives change dramatically. Comparisons, between the great rainforests of Africa and the Amazon and those in Borneo (and other parts of South East Asia) have revealed some surprising differences. While those in Africa and the Amazon show a

degree of uniformity, with a closed canopy at a consistent height, those in Borneo appear more random, with no discernable uniform canopy height and the presence of a large number of trees protruding way above the canopy (so-called emergents). Furthermore, the rainforests of Africa and the New World are criss-crossed with vines and lianas that are far less evident in Borneo.

Evolving the ability to 'fly' solves the problems these differences present perfectly; if there is no way to walk across, just climb up and glide across the gap in the forest.

Of course the term 'flying' that is applied to all the different groups in Borneo is not strictly accurate: bats and birds are the only vertebrates with true powered flight. The

majority would be much better described as 'gliders' as they are able to traverse large gaps and cover considerable distances in the air, but always constrained by gravity: they leap from high and land lower down. The colugo or flying lemur, the flying squirrels and the flying lizards (*Draco sp.*) are the prime examples of this. Flying geckos, flying frogs and flying snakes are less sophisticated. Their mode of aviation would be better described as a controlled fall or 'parachute'. All species have flaps of skin or other methods of dramatically increasing their surface area to provide air resistance. This slows their descent and also allows horizontal movement during the fall, with a degree of control and manoeuvrability.



Clockwise from below: agile gibbons sing in the morning to establish territory; Camp Leakey, Tanjung Puting NP, the very rare clouded leopard; an egret as the moon rises



KALIMANTAN

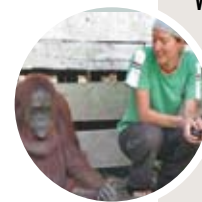
Access to the wildlife hotspots of Kalimantan (part of Indonesia) is more difficult than visiting locations in Malaysian Borneo. Firstly because getting to Kalimantan itself is less straightforward than getting to Sarawak or Sabah (or Brunei), and secondly, because infrastructure within Kalimantan is much less developed and travel can therefore be more time consuming.

Without doubt the most famous location is Camp Leakey within **Tanjung Puting National Park**, which initially gained renown as the site for the long-term orangutan research carried out by Dr. Biruté Galdikas. From informal beginnings in 1971, this later became one of the island's foremost rehabilitation centres. Its success at releasing rehabilitated orangutans brought its problems though, as tourist numbers increased dramatically. Ironically, this influx undermined the rehabilitation process and increased the risk of introducing serious human diseases to the rehabilitated orangutans, who then potentially could transmit disease to the wild population. In 1995 new regulations in Kalimantan

prohibited the reintroduction of orangutans into areas currently supporting wild populations and the releases in to Tanjung Puting stopped. The park nonetheless supports a thriving population of wild and previously released animals and currently has around 500 orangutans.

Lying just inland from the south coast, the park can be found on a peninsula surrounded by the Java Sea. It officially covers 3,040 square km of lowland dipterocarp and peat swamp forest, with nipa palm and mangroves around the coast. It is the largest protected forest in Central Kalimantan and one of the largest protected areas of tropical heath forest and peat swamp forest in South East Asia.

The area supports much more besides orangutans. There are good populations of proboscis monkeys, agile gibbons and silvered langurs. Clouded leopards, various civets, sun bears, and wild cattle or banteng have also been recorded, as have several species of hornbill and a great diversity of bird life, especially waterfowl, egrets, herons and storks.



Essential Borneo

WHO: CAT GIBBONS, PROJECT COORDINATOR, THE ORANGUTAN FOUNDATION
WHERE: TANJUNG PUTING NATIONAL PARK, KALIMANTAN
 Tanjung Puting National Park

offers a window into the past. Accessible only by boat, the journey follows the Sekonyer River, where kingfishers flash by and proboscis monkeys chatter in the trees. It hasn't changed in centuries.

Then there are the orangutans. The park's population is one of the largest remaining and they serve as icons for the park. However since the mid-1990s the area has become increasingly threatened by illegal logging, agricultural encroachment and fires.

For those wanting to enjoy the experience and get involved, the Orangutan Foundation offers tours and volunteer programmes, where involvement and contributions really make a difference. Tanjung Puting is certainly a natural wonder not to be missed.

www.orangutan.org.uk



Left: the Wagler's pit viper is active at night, remaining coiled in a tree by day. Below: the canopy walkway, Ulu Temburong NP



BRUNEI

Less well-known than its larger neighbours, Brunei has only recently begun to develop its ecotourism potential. Because of the wealth generated from its oil and gas reserves, Brunei has not needed to exploit its forests and logging has been only a minor issue. This, combined with a small population and reduced pressure on the environment, means around 75 per cent of the State's forests remain intact. Correspondingly, Brunei still has natural areas of significance and parks where an excellent appreciation of wildlife can be gained. Relatively good infrastructure and accommodation makes travelling easier.

Ulu Temburong National Park (formerly the Batu Apoi Forest Reserve) located in the easternmost corner of Brunei is the only locality that has so far been significantly developed for tourism.

The lowland dipterocarp forest is dominated by giant trees, and one of the highlights is an impressive canopy tower and walkway, suspended 50 metres above the forest floor. Tiger orchids and other epiphytes can be seen clinging to nearby branches and birds such as bushy crested hornbills and black and yellow broadbills are common. Bornean gibbons are generally heard each morning.

Common reptiles include the strikingly coloured Wagler's pit viper, five-lined flying lizard *Draco* and the bent-toed gecko. Amphibian life is rich and varied too. Over 400 species of butterfly have been seen in the park, including Rajah Brooke's birdwing.

Ulu Temburong is two hours travel from the capital of Bandar Seri Begawan. **Ulu Ulu Lodge** provides good quality accommodation and arranges all activities.

WHEN TO GO

Time your visit to avoid the rains (and the crowds)

Borneo has a typically equatorial climate, so it is hot and very humid all year round. Temperatures rarely drop below 20°C and can rise to over 30°C. As such, the island can be visited at anytime of the year. However, by definition, rainforest areas have a wet climate and there are two definable seasons. The wet season traditionally runs from November to March and it can

rain every day although rarely for very long periods. Hence the better period to visit is between April and October. However, the climate remains unpredictable and the possibility of downpours exists any time but these are often brief.

Late June until mid-August tends to be the busiest time for tourism. Sabah in particular is not only popular for wildlife

holidays; it is also a renowned diving, golf and honeymoon destination, hence the summer months being the busiest.

National parks that are in close proximity to towns and cities, for instance Kinabalu Park and Bako, also tend to get very busy with locals at weekends, so mid-week tends to be quieter and potentially more productive and enjoyable.

ONES TO WATCH

The best of the island's wildlife to look out for during a visit

ORANGUTANS

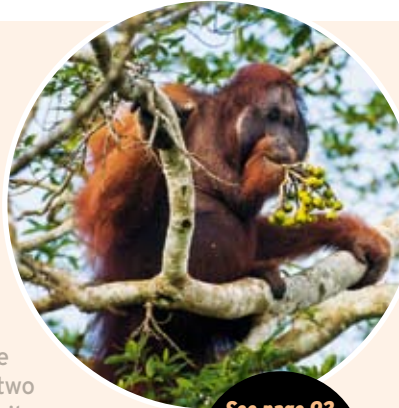
Pongo pygmaeus

Perhaps more than any other animal the orangutan is synonymous with Borneo. Hold the inquisitive gaze of an infant and the narrowness of 15 million years of evolutionary separation is only too apparent. But unlike ourselves they are solitary creatures leading reclusive lives and foraging alone over large areas of forest. Only adult females with young do not travel alone. Indeed, other than when males and females come together to breed, the only time orangutans see other orangutans is when two or more congregate in a large tree laden with ripe fruit. Their diet is dominated by fruit, for which they have a huge appetite; around half the day is spent feeding.

Females give birth to a single offspring every seven to eight years and these do not become completely independent until at least seven and sometime ten years. This is the slowest breeding rate of any terrestrial mammal and is a major reason why orangutan populations recover so slowly.

Spotting tip:

Orangutans can be surprisingly quiet. Listen for leaf rustling and branches cracking in the canopy. Or look for a fruiting wild fig, which is likely to attract orangutans along with other animals.



See page 92
for our guide to
Borneo's other
must-see
primates

BORNEAN PYGMY ELEPHANT

Elephas maximus borneensis

Borneo's elephants are now classified as an endemic subspecies, the Bornean Pygmy Elephant. As implied, they are the smallest of all elephants, weighing around half that of their counterparts from the Indian Subcontinent. Other peculiarities include long tails and straight tusks (only possessed by males). It is quite probable that these features are adaptations to their dense forest environment (having straight tusks is a feature they share with forest elephants in Africa).

They are confined to areas in the north east, primarily in Sabah and also just into the north east corner of Kalimantan, where they are found in lowland dipterocarp and riverine forest and occasionally entering swamp and nipah forest to forage. They also venture into plantations (coconut, cocoa and palm oil) and gardens where they raid crops and cause considerable damage (see box).



RETICULATED PYTHON

Python reticulatus

The reticulated python is another one of Borneo's record breakers as it is widely regarded as the world's longest snake, although it is common through much of South East Asia, Indonesia and the Philippines.

Stories of giant snakes are the subject of considerable exaggeration. In reality, accurately measuring a wild snake is virtually impossible. Reticulated Pythons regularly exceed 6.5m and there are authentic reports of snakes reaching 9-10m.

They occur throughout lowland areas and are often found close to water. Smaller snakes spend the day coiled in the canopy; larger snakes tend to rest in hollow trees or under logs near the ground.

Spotting tip:

They are often found near lodges, adjacent to villages and even in palm oil plantations.

RHINOCEROS HORNBILL

Buceros rhinoceros

Boldly marked and conspicuous, no group of birds epitomises Borneo's forests more than hornbills. Their large size, extravagant bills and loud calls make them instantly recognisable.

The largest and arguably most spectacular species is the rhinoceros hornbill. It is the national bird and the emblem of Sarawak. The species' duet calls are one of the characteristic sounds of the rainforest, where the lower pitched resonant honk of the male is complemented by the higher pitched note of the female. These calls build together in tandem and reach a crescendo as the pair take flight; the rush of air over the birds' wings producing an audible 'whoosh'.

Spotting tip:

Their calls are generally heard before they are seen, but it's then easier to pinpoint where they are in the canopy. Fruiting trees are often irresistible and can attract several birds.



Spotting tip: Herds cover huge ranges up and down the river and can be easily missed. It is better to spend several days on the Kinabatangan River to increase the chances of success. →

GREAT ARGUS PHEASANT

Argusianus argus

Although a large bird (up to 2m), the great argus pheasant is more often heard than seen. Its distinctive, explosive cry – “kow wow” – is one of the defining sounds of Borneo’s forests.

Few birds try as hard as the male to impress a potential mate. During the breeding season they maintain a dancing ground in a small clearing. This is tended with great delicacy - all leaves, twigs and debris are removed to create a clear stage on which he can perform. If a female wanders onto the arena, his



extravagant display begins by walking around the female in ever-decreasing circles until he is very close. He then thrusts his wings wide open, inverts and draws them into a circle that creates a curved funnel. At the same time he remains hidden behind the wings, but waggles his very long tail to produce a rustling noise. The long secondary feathers on the males’ wings are spectacularly marked with lines of ‘eyes’ or ocelli that form a bank of feathered finery into which the female is looking. However, she is not easily pleased and may visit the dancing grounds of several males before consenting to mate.

Spotting tip: In Danum Valley, look for obviously cleared areas on the forest trails. If active a male will return to his ‘dancing ground’ and will frequently call.



BORNEAN HORNED FROG

Megophrys nasuta

When it comes to deception, few creatures surpass the Bornean horned frog. Adults have evolved sublime camouflage to blend imperceptibly into the forest floor’s carpet of fallen leaves. Unlike many other frogs, this large species is not very agile and is unable to leap long distances. With a stout body and short hind legs it is only capable of ‘bunny-hops’, so instead relies on its camouflage to avoid being preyed at. During the day they tend to lay low, concealed beneath large leaves, fallen logs or rocks. Their loud resonant honks, often before heavy rain, are one of the characteristic late afternoon or dusk sounds in lowland forests. They are fully active only at night.

Spotting tip: At night, scour the forest floor with a torch and it is possible to see faint eye-shine. Or listen for calls and try and pin point their location.

RAJAH BROOKE’S BIRDWING

Trogonoptera brookiana

Borneo is famous for its butterflies, with the most celebrated group being the birdwings. Attaining wingspans of up to 180mm, these are the leviathans of the lepidoptera world.

They are also exquisitely beautiful, as epitomised by the famous Rajah Brooke’s birdwing. This is a species of lowland and low montane forests and is generally associated with streams. Males are more spectacular than females, with scarlet heads and wings of jet black with a series of iridescent yellow-green spear-shaped markings down their outer edges.



Spotting tip: Keep an eye out around newly formed forest pools (after rain) or sandy bars on the edges of streams where minerals may also be close to the surface.

COLUGO OR SUNDA FLYING LEMUR

Galeopterus variegatus

The colugo or Sunda flying lemur is neither a true flier (they glide) nor a lemur, but belongs to a distinct order of mammals called the Dermoptera, which literally means ‘skin wings’.

It is often the unlikely shadowy-shape of a colugo gliding between two trees at dusk that is your first inkling of the animal. Although they rest on and climb up trunks, so effective is their camouflage against the bark that they are very difficult to spot. Because of the membrane that stretches between their limbs and behind to the tip of the tail, they are cumbersome climbers and tend to move up trunks in clumsy, rabbit-like hops. However, with their wing membranes outstretched, they take on a far more graceful air and can execute glides in excess of 70 metres.

To avoid the likelihood of predation by raptors, they are active around dusk and dawn and after nightfall. The day is usually spent resting tight against a tree trunk or hanging upside-down beneath a branch.

Spotting tip: Resting animals are fiendishly difficult to spot, but look for lumps on the trunks of trees that look a little odd. When active after dark, it is possible to catch their eye-shine in a torch beam, so it is always worth systematically searching likely areas.

