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Natural Heritage of Malaysia

BEAUTIFUL MALAYSIA
Majestic Mount Kinabalu

Visit Malaysia 2007
Celebrating 50 Years of Nationhood

Beautiful Malaysia, with its long coastline and numerous island archipelagoes, tropical rain forests, geological formations and cave systems, unique valley geomorphology, rivers, and mountain ranges, has diverse ecosystems that support and sustain a rich flora and fauna population. In fact Malaysia is cited as one of the 12 mega biodiverse systems in the world. In the pages that follow, the reader will be taken through an exhilarating tour of our rich natural heritage. But on this page we shall focus our attention on the majestic Mt. Kinabalu, an iconic landmark and a national pride.

Located in Kinabalu National Park in the state of Sabah at an awesome height of 4,095 metres, Mt. Kinabalu is linked to the many legends of the Dusun community who live in its foothills. It is the highest mountain in the country and the third highest in South-east Asia, after Hkakabo of Myanmar and Puncak Jaya of Irian Jaya Indonesia. Mt. Kinabalu is regarded as one of the most beautiful mountains in the world.

The mountain displays many moods - bright and cheery when the sun is in the sky, dark and fearsome on a torrential day, and on other days strong and majestic, proud and steadfast, or threatening and scary.

The temperature difference from its foothill to the summit is dramatic - warm below and cool to freezing as you reach the peak. Arising from the climatic difference, the different ecosystems contain a wealth of floral species. The mountain and its surrounding areas harbour some 6,000 plant species including the famous rafflesia. Equally rich are the faunal species where the inventory lists some 100 species of mammals, 290 butterflies, 322 moths, 21 bats, 61 frogs and toads, 326 birds and 40 freshwater fishes. The floral and faunal species numbers make it the most important biological site in the world!

The first recorded effort to reach the summit was made by Hugh Low in 1851. As recent as in 1970, only 1,962 individuals had scaled the summit. The subsequent improvements to the trail in the 1980s saw a surge in the number of climbers. By 1994, annually some 30,000 climbers were scaling the summit. This total is considered an appropriate carrying capacity for the mountain, beyond which the ecosystems are likely to be adversely affected.

Following a proposal from Professor EIH Corner of the Royal Society of London to establish a national park to protect the biodiversity of the ecosystems around the mountain, the Kinabalu National Park was established in 1964. UNESCO designated it as a World Heritage Site in December 2000. Today collaborative efforts between the Government, universities and research bodies are on-going for the preservation of this mountain habitat for future generations.

References

K.M. Wong, KM & A Phillips. 1996. *Kinabalu Summit of Borneo.* Kota Kinabalu, Sabah: The Sabah Society.

Hashim Abdul Wahab. 2001. *Adventure Journey in Sabah.* Kuala Lumpur: Alafhakam Sdn Bhd.

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Contents

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From the desk of the Director General

Romancing with Nature

All human descriptions of Nature contain the seeds of two different, but not incompatible, views - the romantic and the scientific - both of which have their adherents. In all likelihood the romanticists came first. Long before the scientific establishment systematically collected, classified and described Nature in all its bounty, the Romanticists understood and felt its miraculous and subtle beauty. Art and artists imitated Nature, the poets, songwriters and musicians sang its praise. The common man, with awe and amazement literally gawked at it. Yes, of course, he took from Nature what he needed - the fish in the streams, the deer in the forests, trees from the hill-slope and the flowers from the meadows. Nature provided him his needs but just as important, and we often forget this, it nourished his innermost thoughts and feelings and made him wholesome in a profoundly human way. Nature made him reach out to the sublime beauty that is all round us and within us. For Nature is the greatest of all reminders of the Creator and the benign creativity inherent within our soul.

Today with Nature in peril, both the scientific and romantic views of Nature must surely share a unity of purpose. How else can the concerned scientific establishment reach out to masses in this greatest of endeavours unfolding before us in this new millennium : the preservation of Nature (or of what is left of it!) to both sustain Nature and inter-linked with it, human existence itself, on Earth. Perhaps our greatest success will come when more of us spend that little bit of time with Nature and appreciate its sublime beauty. The 'inconvenient truth' with regards Nature, as put forth by scientists and supported by a mass of data, facts and research papers are laudable. But it will remain distant and remote until and unless the romantic yearnings of humankind wake up to the facts and the truths. Only then can this great endeavour of coexisting with Nature really take off as a global mass movement.

In this issue of IMPAK, we have made this distinct attempt to invoke the romantic view of Nature. That is, 'enjoying' Nature will surely make us all the best defenders of it even if we lack the scientific bent of mind. And what Nature, Malaysia has!

The treasures of the Malaysian waters are the islands protected within the Marine Parks - over 200 enchanting islands which are much sought after by scuba drivers, snorkellers, naturalists and underwater photographers. The gems among them are Sipidan and Layang-Layang. Then take the National Parks. The rainforests in the park are believed to be 130 million years old with a diversity of flora and fauna that is truly astounding. Several of the orchid species found in these parks are endermic to the region. Four out of seven species of marine turtles extant in the world call our coastline home. Our rivers in the forests are beauty personified. Today many rivers in the forests are designated as recreational sites - Kenong Forest Park, Endau-Rompin State Park, Mt. Jerai Forest Reserve, Ulu Muda Forest Reserve, Mt. Stong Forest Reserve, Wang Kelian State Park, Mandi Angin Forest Reserve and Mt. Panti Forest Reserve.

"Everyone, no matter what age, should learn to relax and enjoy the gifts of Nature", says a contributing writer to this edition. He recommends bird watching. The country is home to over 600 species of our feathered friends. Through bird watching, we will eventually get connected to the concept of the web of life and watching birds will reveal the 'humanity' and 'intelligence' in these creatures, we so arrogantly deem to have bird brains! Tanjung Tuan (Cape Rachado), Paya Indah Wetlands, Matang Mangroves, Frasers Hill and Bukit Larut (Maxwell Hills) are preferred locations.

Mangrove forests are a unique habitat. They are inter-tidal, supporting salt tolerant vegetation and are composed of muddy shores, lagoons and tidal estuaries. And Malaysia has some 436,000 hectares of it. They serve multiple roles - being habitats for wildlife such as mammals, reptiles, amphibians, and water birds, both resident and migratory. Some examples of mammals that live in the forest are primates including long and stump-tailed macaques, silver-leaf monkeys, otters, leopards, civets, cats, bats, dolphins and wild pigs. White bellied sea eagles, several water birds species and kingfishers can be easily spotted here. The mangrove is also credited with maintaining an aquatic ecosystem for all sorts of fish, crustaceans and insects. Amphibians and reptiles such as crocodiles are quite common in this type of habitat. This habitat also provides many amenities recognised beyond its boundaries. Mangroves play an important role in the environmental system, among which includes functioning as a giant filter for water and other effluents and stabilising the shorelines and soil condition from soil loss due to wind and high wave action.

And there is more yet - our caves, fireflies, turtles, mountains, waterfalls, botanical gardens and orchids. No wonder we are ranked 12th in mega biodiversity. So go on then.... be a romantic. Better still, romance with Nature. It will make this Earth a better place.

Dato' Hajah Rosnani Ibarahim
Director General
Department of Environment, Malaysia

BUKIT LARUT
Rich in Biodiversity


The biodiversity of Bukit Larut

Mountains make up a fifth of the land surface of the earth and are home to about a tenth of the human population. The fragile environment of the mountains also provides refuge and a safe haven for many unique plants and animal species. In Malaysia, all land 900 metres above sea level is referred to as 'mountain', while a land above 300 metres of sea level as 'highlands'. Over 20 mountains in Malaysia are above 2,000 metres in altitude. Mt. Kinabalu has the distinction of being the highest peak between the Himalayas and Irian Jaya (New Guinea), soaring to a spectacular 4,095 metres above sea level. The second highest mountain in Malaysia is the Mt. Trus Madi (2,597 metres) in the Crocker Range, Sabah.

The granite mountains of the Titiwangsa Range, also known as the Main Range, reach elevations of over 2,000 metres. The main range which is the backbone of Peninsular Malaysia, runs from the Thai border in the north, narrowing as it extends southwards to its tip at Mt. Tampin in the state of Negeri Sembilan. The highest peak in the range is Mt. Korbu, at 2,183 metres, while the highest mountain in Peninsular Malaysia is the Mt. Tahan (2,187 metres) which is located in the Tahan Range, Pahang.

Bukit Larut (Maxwell Hill)

Bukit Larut, which is located near Taiping (approximately 4°54'N, 100°47'E), is part of the Mt. Bintang Hijau Range that stretches from the Thai border in the North to the Mt. Bubu Forest Reserve near Kuala Kangsar in the South. The highest point in the reserve is at Mt. Hijau (4,200 feet). Its close proximity to the sea and copious rainfall has resulted in the growth of a profusion of flora and fauna seen in few other places in the country.

The forests consist mainly of lowland dipterocarp, upper dipterocarp and montane oak forests at elevations above 976 metres. 7,150 hectares of Bukit Larut were gazetted in 1910 as the Larut Hills Forest Reserve, and in 1962, a core area of 2,747 hectares within this reserve was gazetted as the Larut Hills Virgin Jungle Reserve. Bukit Larut is classified as a category I 'Strict Nature Reserve' by the International Union for the Conservation of Nature.

Under the United Nations Environment Programme World Conservation Monitoring Centre, Bukit Larut has been classified as an area of ecological and botanical importance. It is now promoted as an ecotourism site and is fast emerging as a popular spot for bird watching. An hourly landrover service takes visitors up to the hill station for a small fee. The 30-minute journey passes through virgin rain forests and many hairpin bends before arriving at the 6th Mile, at an altitude of 1,036 metres above sea level, which is the main visitor's area. This is the best location for a panoramic view of Taiping and the coastline.

Flora and Fauna of Bukit Larut

1 1,980 flowering plants
- 1,449 of which are endemic to the area

2 200 species of birds
- Peregrine Falcon
- Cutia
- Mountain peacock pheasant
- Other montane species

3 Mammals
- Agile Gibbon
- Clouded Leopard
- Tapir
- Lawas Toundleaf Horseshoe Bat
- Serow
- Several other species

Importance of Bukit Larut

- It is the major water catchment supplying water to Taiping. According to the Perak Annual Reports 1880 to 1885, water from Bukit Larut was first supplied to Taiping in 1882.
- It is an area rich in diverse life forms. Some of the species of plants, animals, insects and amphibians found here are unique to this area.
- Streams flowing from Bukit Larut help sustain the Matang Mangrove Ecosystem. Without this constant flow of freshwater, the mangrove cannot sustain the diverse and economically rich marine life found here, although the ecosystem is now under severe threat from industrial, agricultural and domestic water pollution.
- By maintaining its present status, sedimentation of rivers is avoided.
- It caters for communication equipment near the peak. Television, radio and telephone equipment are installed here.
- It is an ecotourism destination. This is one of the best locations for bird watching in Perak. Walking up the hill is like walking through an old tropical forest.
- It is a health and recreation centre for locals. Large numbers of locals walk or run up the hill, especially in the mornings and evenings.
- It moderates the local weather. Taiping's cool weather is due to its close proximity to Bukit Larut.
- It is a carbon sink as it absorbs green-house gases released by industries and automobiles.

Bukit Larut is rich in biological diversity as well as supports many important ecological processes, the most important of which is its function as a water catchment area for the Larut Matang and Selama District as well for the township of Taiping. Soil erosion is a major problem resulting from development activities occurring along the fringes of the forest reserve. More efficient procedures need to be outlined for the ongoing logging and agriculture activities to minimise their impact on the environment, biodiversity and the unique function Bukit Larut performs for the surrounding areas.


Nepenthes sanguiana


Hornbill

References

Education and Research Associations for Consumers Malaysia (ERA Consumer). 1997. A Biological Management Study of Bukit Larut and Its Surroundings, Perak, Malaysia.

Messerli, B & Ives, J.D. 1997. Mountains of the World –A Global Priority(A Contribution to Chapter 13 of Agenda 21). The Pantheon Publishing Groups.

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NATIONAL PARKS of Malaysia

Malaysia's National Parks are a paradise of green foliage and soft dew drops, a world of intricate patterns and wonder. Malaysia's location just above the equator allows the country to enjoy an equatorial climate with fairly uniform temperatures throughout the year.

Malaysia is a land blessed with natural beauty. It boasts of one of the tallest mountains in the region, Mt. Kinabalu in the state of Sabah in the Borneo Island; it has the one of the world's biggest limestone caves called the Niah Caves in Sarawak. The longest river in South-east Asia, the Rejang River, is also in Sarawak. The largest flower in the world can also be found in Malaysia – the Rafflesia.

Realising the importance of preserving the natural beauty of Malaysia, the Malaysian government has established national parks and to date, there are 12 national parks in Malaysia. Among the famous national parks in Malaysia are the Taman Negara (National Park, Pahang), Endau-Rompin, Bako National Park, Sepilok Orang Utan Sanctuary and the Niah National Park, Sarawak.

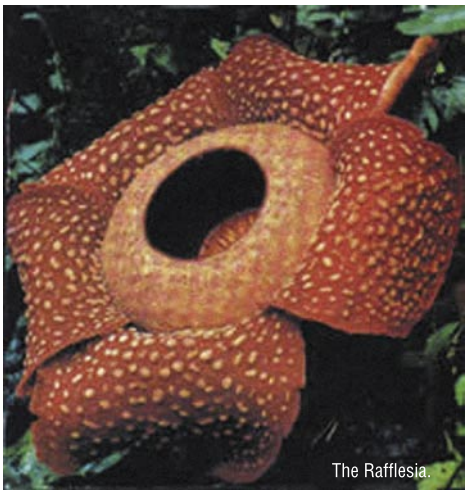
Taman Negara (National Park)

The oldest Malaysian national park, Taman Negara, was declared a conservation park in 1938, and since then has emerged as the premier national park in the country. The Park covers an area of 4,343 square kilometres (434,300 hectares), making it the largest national park in Malaysia. Taman Negara is a marvel of natural beauty. Its rainforest, among one of the oldest rainforests in the world, is believed to be about 130 million years old. The diversity of flora and fauna in the Park is astounding. This ecosystem has been developing and evolving uninterrupted for millions of years producing a myriad of different plants and animal species. A crucial point not to be overlooked is that all visitors to the park must get permits from the Department of Wildlife and National Parks.

Trekking through the park is a memorable experience. The beauty and grandeur of the park makes one feel truly humble at the greatness of creation. In Taman Negara, one will encounter many plant species such as various pitcher plants, orchids (some of which will never flower under human cultivation), ferns, vines and lianas and of course the large rainforest trees. Walking under the canopy may make one feel like an elf walking through the secret realms of a hidden kingdom.

Animal watching is a popular activity in Taman Negara. There are some specific locations with watch towers to watch animals going about their own business without human interference. The park is home to many mammals that are indigenous to this country. Among the many animals are the Indochinese Tiger, Sumatran Rhinoceros and the Malayan Gaur (seladang). And if one is lucky, one may chance upon a herd of Asian elephants headed by the dominant female. The antics of an elephant calf can be extremely amusing. It is the hope of the Government that the Malaysian Indochinese Tiger and the Sumatran Gaur, both endangered species, will reproduce within the safe environment of the Park and continue to enchant our future generations.

Mt. Tahan, the tallest mountain in the Peninsula, is located in Taman Negara with its highest point being 2,187 metres high. From the name it is evident that conquering this particular mountain is no easy task. To hike up Mt. Tahan, there are two departure points. One is located at Merapoh and the other is at Kuala Tahan, the classic trail. This trail takes about seven days for an experienced climber. For average climbers, the Merapoh trail is recommended as the departure point. Mt. Tahan is considered by many hikers as one of the toughest treks in South-east Asia. Several rivers cross the train and one has to trek across



The Rafflesia.


Pitcher Plants


Majectic rivers in Endau-Rompin

undulating ridges, before finally reaching the foot of the mountain to make the final ascent.

Endau-Rompin

Southwards to the Pahang-Johor border lies the second largest national park in Malaysia, the Endau-Rompin. It covers an area of 800 square kilometres (48,905 hectares) and is made up of extensive lowland forests. It also has rock formations dating back some 248 million years and is the watershed of several rivers such as the Endau River, Selai River and Jasin River. Much of Endau-Rompin is still virgin forest. Hence, it is a good place to seek and observe unique plant and animal life. For plant enthusiasts, Endau-Rompin offers a diversity of plant life. Many new species of plants have been identified in the area and it is hoped that continuous research on these plants will yield new and better medicines for the future. For bird watchers, Endau-Rompin offers about 250 different species of birds. Among the more unique birds is the small *refocus peculate* or better known as the world's smallest woodpecker. Fauna enthusiasts will find that Endau-Rompin offers many animals such as tapirs, elephants and tigers. Most importantly Endau-Rompin is home to the largest population of the rare Sumatran Rhinoceros.

Endau-Rompin is blessed with beautiful sights, in particular, the numerous waterfalls in the area. Among the waterfalls, the Buaya Sangkut waterfall on the Jasin River is the most impressive at 40 metres wide and 120 metres high.

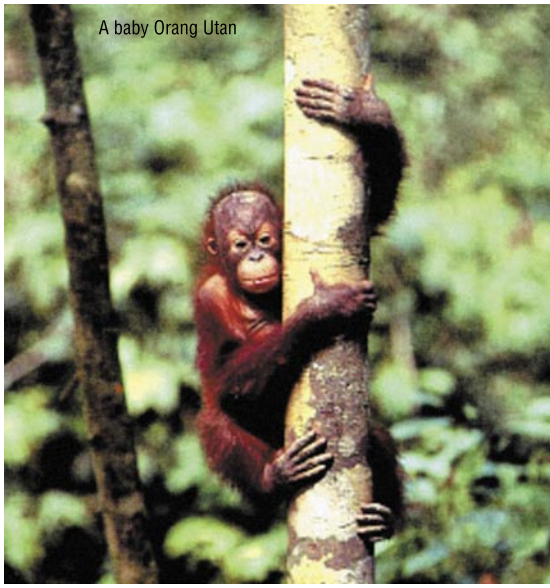
Sepilok Orang Utan Rehabilitation Centre

In the state of Sabah, better known as *the Land Beneath the Wind*, is the world famous Sepilok Orang Utan Rehabilitation Centre. This Centre was established in 1964 and is located on a 43-square kilometre protected land at the edge of Kabili Sepilok Forest Reserve. It aims to rehabilitate orang utan apes, in particular orphaned orang utan in an attempt to coax them back to the wild.

In nature, an orang utan baby learns forest skills from its mother. In the case of orphaned babies, the young are unable to learn and master the required skills that are needed to lead a successful life in the wild. Thus these orphans become overly dependant on human care. One may wonder why there are many orphaned orang utan babies. Well most orphans are received from areas with rampent logging activities where an adult ape may have died or has abandoned its baby. When such baby orang utan are encountered, they are handed over to the rehabilitation centre. Another common culprit is the exotic pet industry. When young, baby orang utan are truly cute but the situation turns ugly when the orang utan grows and becomes difficult to feed and manage. Many are abandoned or are kept in sad and unhygienic conditions until they eventually die. The Centre is slowly but steadily integrating these orang utan into the forest surroundings, the natural home for these apes. The rehabilitation process is not an easy task as it is not a simple matter of just placing the orang utan in the forest. The orang utan must first be taught the basic skills of living in the forest. Not all skills that these creatures possess are pure instinct. It involves a lot of patience and much affection and love for these animals, whose behaviour and antics are so human. It is no wonder that they are fondly referred to as orang utan (forest people).


Exotic flora


The Tapir


A baby Orang Utan

Conclusion

The natural beauty of Malaysia's national parks are truly a marvel to the world. The green plants and creepers, various unique plants and animals growing and living peacefully in their natural habitat are certainly beautiful to behold but are extremely fragile. They depend on us for their survival. We Malaysians can contribute to making this world more beautiful by doing all we can to preserve and support the national parks.

Photo sources

www.loc.gov/vv/scitech/mysteries/images/

www.greenpeace.org

www.sabah.edu.my/srm-12.wcdd/bm/galeri.html

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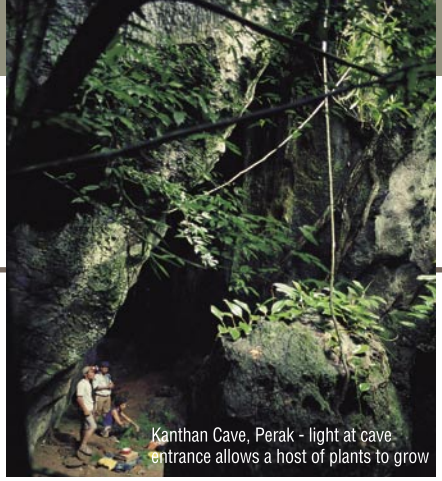
LIMESTONE CAVES of Malaysia

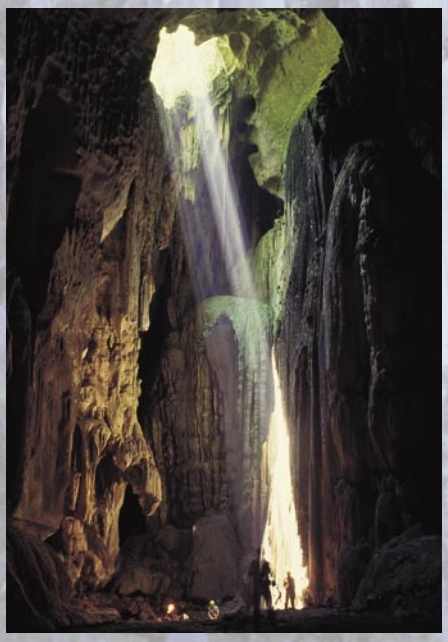

Kanthan Cave, Perak - light at cave entrance allows a host of plants to grow

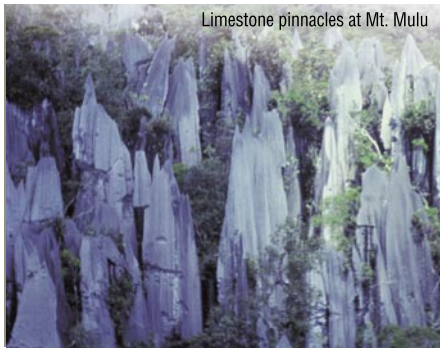
Spectacular and significant limestone landscapes and caves in Malaysia are found mainly in the Kinta Valley, Perlis-Langkawi Setui Range and Kelantan in the Peninsula. In Sarawak the Mulu and Niah limestone complexes dominate while in Sabah, the Gomantong Cave is a source of economic interest due to the harvesting of swiftlet's nest. In Kuala Lumpur, Bukit Batu or Batu Caves is in fact the southernmost limestone hill of significant interest. Batu Caves is the centre of the renowned Tamil Hindu festival of Thaipusam which reportedly has been celebrated here since 1892. Batu Caves has emerged as a significant tourist destination.

Formation

Throughout the world, caves are found mostly in lava, ice, sandstone and limestone. Limestone caves also known as "Karst" were originally formed in the shallow waters of a warm sea mainly occurring during the Silurian period. During this time, the calcerous skeletons of corals and other animals were deposited and compressed on top of each other on the ocean floor together with lime, mud and other sediments in a slow sedimentation process. It should be noted that not all limestone caves were formed at the same time or all parts of a single cave are necessarily of the same age.

During the mountain building period, beginning around the geological period of Triassic, landmasses were lifted above the sea by the movement of continental plates. During this process the limestone was heated, compressed and folded and changed or metamorphosed into various forms such as marble which is an important rock sourced from limestone hills in Peninsular Malaysia.These mountain complexes together with large limestone or karst plains were subjected to the huge force of erosion caused by rain which slowly dissolved the more soluble portions leaving behind the harder substances. The chemical basis for limestone erosion is essentially calcium carbonate ($CaCO_3$), which dissolves easily in the weak acid present in the atmosphere and forms when carbon dioxide (CO_2) combines with rainwater.


Kanthan Cave, Perak - effects of light through cave ceiling


Limestone pinnacles at Mt. Mulu


Cave centipede

This weak acid needs a prolonged period to dissolve the limestone, resulting in magnificent limestone landscapes with steep sided cliffs which often tower above the alluvial plains.

Value

Caves are of enormous human interest, not only to geologists, archaeologists, ecologists, speleologists (cavers) but also to wildlife enthusiasts and nature lovers. They also serve socio-economic and cultural value functions.

Malaysian caves have been explored and exploited since the arrival of migrant vegetable farmers who realised the importance of the guano (bat droppings) as a rich source of organic fertiliser due to our phosphate deficient soils. Batu Caves for instance was first "discovered" in July 1878 in a hunting trip led by Captain H.C. Syers, Selangor's first Superintendent of Police when he "caught wind" of the strong smell of guano wafting through the thick vegetation which enveloped the whole of the Batu Caves complex. Scientific exploring work and botanical surveys commenced led by Mr H.N. Ridley who is known more for his exploits in successfully introducing the Brazilian rubber tree (*Hevea braziliensis*) to Malaysia. Archeologically, there have been some pre-historic drawings at the entrance of the Temple Cave in Batu Caves recorded by Ridley but none are as significant as the evidence of Perak Man in Kota Tampan Cave near Lenggong Perak and the Niah Caves in Sarawak.

In Sabah and Sarawak, interest arose from various geological surveys resulting in expeditions such as those by the Royal Geographical Society (RGS) Expedition of Mulu in collaboration with the Sarawak Forest Department in 1978.

Life in the Dark

What is immediately obvious on entering a cave is its unique formations. Stalactites and stalagmites of all sizes and forms imaginable have resulted in people entering caves sometimes risking life and limb and at times ignoring most of the other less obvious but equally important attractions. Formations such as flow stones, cave curtains, gour-pools, columns and dripstones are equally spectacular. Specially adapted cave fauna such as bats, snakes and other invertebrates thrive in the deep, dark and damp atmosphere of the caverns while limestone plants drape the surface of the limestone hills.

Tourism

"Show caves" comfortable enough for the casual visitor may not be so common in Malaysia. Some visitor facilities have been developed to allow the public to view and experience caves in some areas such as the Mulu Cave and Niah Cave in Sarawak, Gomantong Cave in Sabah, Tempurung Cave in Perak and the Perlis State Park. In Batu Caves, eco-educational tours are available for groups and individuals. There is immense potential for sustainably managed show caves for eco-educational tours especially in the limestone rich Karst regions in Sarawak, Perak, Perlis and Kelantan.

References

Mike Meredith and Jerry Wooldridge,FRPS & Ben Lyon. *Giant Caves of Borneo.*

Shaharin Yussof. *The Natural and Other Histories of Batu Caves.*

Source
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Refreshing WATERFALLS


Telaga Tujuh: http://www.cuti.com.my/Sub/Kedah/Langkawi/langkawi_telaga_tujuh_1.jpg


Telaga tujuh: http://www.langkawi.com.my/telaga%20tujuh.gif


Jelawang falls: http://www.waterfallsof-malaysia.com/Nfalls/n61fallwide.jpg

Malaysia, is a land containing an abundance of nature's hidden treasures. Some are yet to be explored and enjoyed. The hot spots in Malaysia are beautiful sandy beaches, thick luxurious rainforests, tall mountains and the most invigorating of all, the cool and refreshing waterfalls.

To begin with, the Chemerong waterfalls located in Terengganu and Jelawang waterfalls in Kelantan are purported to be two of the highest waterfalls in South-east Asia. Chemerong Waterfall, situated 30 kilometres away from the town of Al-Muktafi Billah Shah, thunders magnificently down a 305-metre slope. Meanwhile the Jelawang falls is an impressive seven-tier waterfall, with the tallest single drop being 250 metres. The Jelawang falls is part of the Gunung Stong State Park (GSSP) and managed by the Kelantan Forestry Department. The best way to travel to GSSP is through rail from Kuala Lumpur Central Station to Dabong, and a boat trip across Galas River, Kelantan.


Kanching falls: http://www.geocities.com/Yosemite/Gorge/7313/webcontent/b010101fall.jpg


Mahua falls: http://www.sabah.net.my/mahua/Mahua-Waterfall.jpg

From there we go to the northern region of Kedah, to the stunning and legendary Langkawi Island, one of the most popular tourist destinations of Malaysia. Although Langkawi Island is surrounded by long, beautiful and secluded beaches, there is a "must see" tourist destination, a waterfall area known as the 'Telaga Tujuh' (Seven Wells). There are seven natural pools that are fed by a river flowing downstream, forming a series of cascading waterfalls. The vertical fall is about 80 metres of straight drop. As with everything in Langkawi, the myth that surrounds the falls tells of fairies that delight in frolicking in the cool waters which supposedly has healing properties. A mountain prince once tried to capture one of the fairy maidens, but they have remained elusive. The locals believe that the unique lime trees and the 'sintuk', a climbing plant with large pods that grow around the pools were left by the fairies who often use the leaves to wash their hair in order to cleanse themselves of bad luck.

Across the South China Sea, in Sabah lies the Mahua waterfalls. To reach the Mahua waterfalls, you have to leave Tambunan in the direction of Ranau, where you will reach Patau village after 10 or 15 minutes before reaching the Mahua Waterfall, (if you come from Kota Kinabalu, it would be about an hour and half ride). Mahua falls' breath-taking scenery is reminiscent of the famous Niagara Falls, which continuously sprays mist as the water crashes into the pool below. The environment, beautiful and serene, is definitely captivating.

Closer to home, 30 minutes drive from the heart of Kuala Lumpur is the Kanching waterfalls, nestled between the town of Selayang and Rawang. There are seven waterfalls in the Kanching Park. The Park itself is an expansive area of lush green forests with cascading waterfalls, perfect for a weekend getaway. There are ample facilities for picnicking and camping. Bus No.66 from Puduraya bus station in Kuala Lumpur will take you there in an hour and half using the trunk road to Rawang.

The basic rules of conserving the waterfalls are easy.

- Do observe the basic rules at the recreational base.
- Hikers are encouraged to refer to a guide at the recreational centre.
- Do not litter at the picnic area.
- Do not leave any campfire unattended.
- Do not harm or injure the wildlife.
- Do not smoke.
- Poaching and logging is prohibited.

Have an unforgettable experience by visiting Malaysia's breathtaking waterfalls for the Visit Malaysia Year 2007.

Source
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OUR RIVERS
An Upstream View


Endau-Rompin State Park, Pahang

A river, by definition, is a natural stream of water flowing in a channel. From a geographical point of view, a river is defined as a water body flowing through natural valleys on the earth's surface. Every river varies in terms of water quality, which is dependent upon types of land use along its course. A river begins its life in a forest which serves as an important natural catchment area. The Malaysian tropical rainforest, which is said to be one of the oldest rainforests in the world, provides continuous supply of clean water in Malaysia.


Mt. Panti Forest Reserve, Johor


Kenong Forest Park, Pahang

Rivers found in forests, generally have better water quality, a result of their large flow stream. Large flowing streams of the river increase the concentration of dissolved oxygen (DO) in the river water. Besides, the forest is usually also independent of the influence of organic and inorganic pollution sources. The combination of large flowing streams, high DO, and a pollution-free environment contributes to better water quality within the catchment area, or by the standards of Department of Environment, Malaysia, it falls under Class 1 water quality status.

The silence of the surroundings, interrupted from time to time by the sounds of wild animals in the natural biodiverse-rich forest, one would be amazed and captivated by the beauty of a pristine river in the forest. This pleasing and gentle environment of the river in the forest is certainly an attraction for visitors and nature lovers to come and experience. The soothing environment of the river is also a great calmer of mind, body and soul. This experience will surely foster awareness of the importance of taking care of our forests and the environment to ensure a continuous supply of clean fresh water for future generations.

Today, many rivers in the forests are designated as re-creational sites such as Kenong Forest Park and Endau-Rompin State Park in Pahang, Mt. Jerai Forest Reserve and Ulu Muda Forest Reserve in Kedah, Mt. Stong Forest Reserve in Kelantan, Wang Kelian State Park in Perlis, Mandi Angin Forest Reserve in Terengganu, and Mt. Panti Forest Reserve in Johor. These areas are also chosen to be recreational areas because of the clean rivers and steady flow which is suitable for recreational purposes. Besides these two factors, its natural landscape and available facilities are other factors that draw visitors to experience the beauty of these rivers.


Ulu Muda Forest Reserve,Kedah

Needless to say the management of river water quality is important to maintain the sustainability of the nation. The management of river water quality can only be made possible through protection, preservation, con-servation, remediation and rehabilitation of the forest catchment. All have a role to play in this massive effort to sustain our rivers.


Mt. Jerai Forest Reserve, Kedah


Mandi Angin Forest Reserve, Terengganu

Source
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GARDENS: Conserving Plant Genetic Resources


The Bunga Raya Garden

By definition, gardens are areas where different varieties of flowering plants, shrubs, trees and palms are cultivated and nurtured for people to admire and enjoy. Over the years, leaders and governments have played a major role in beautifying their homes and cities with gardens. Water features, musical and light fountains, artistically trimmed topiaries and well-laid out hedges in a maze of colours, rocks and stones are all components of a beautiful garden. Historically one of the most famous gardens is the Hanging Gardens of Babylon. Japanese gardens like the one in the royal city of Kyoto are noted for their skillfully manicured hedges, rock arrangements and bonsai trees while the Brindavan Gardens is India's pride.


The Penang Botanic Garden

Most gardens consist of a collection of plants for display and admiration by the public. But a true botanic garden serves other purposes as well besides recreational. It normally consists of a collection of a wide spectrum of plants from different environments as well as a herbarium made up of dried specimens of named plants from all over the world. The collection of plants helps in the conservation of plant genetic resources. The botanic gardens also play an educational role and usually have laboratory facilities for research. Most countries will have a botanic garden, some may have a few such gardens. The world's best known botanic garden is the Kew Royal Botanical Garden in England.

Malaysia too has several beautiful and unique gardens, one of which is just over a century old! Yes, the Penang Botanic Gardens is now considered a National Heritage. Then, we have a garden devoted just to our national flower, the Hibiscus Garden, near to the Lake Gardens, Kuala Lumpur. The rich orchid heritage of Malaysia is housed in yet another garden, also located at the Kuala Lumpur Lake Gardens. It is in these gardens that the rich plant genetic heritage of the nation is showcased for all to admire. All flower and nature lovers will surely be awed by this lush undulating greenery, bursting with a myriad of colours.

The Penang Botanic Garden

The first botanic garden in Penang was established by the East India Company when they planted some tropical fruit trees and spices in a garden. Then in 1834, a second Botanical Garden was established but was sold by the Governor who had little interest in plants. It was only in 1884 when the Botanic Gardens of Penang was re-established and under the administration of the Gardens and Forest Department of the Straits Settlements, that the 72-acre Botanic Garden developed into a veritable storehouse of rare, exotic and beautiful plants.

The Garden, located just 15 minutes away from the business centre is a major green lung for the city. It is ideally located in a deep valley at the head of which is a deep waterfall, hence its former name, Waterfall Gardens. It has a rich biodiversity of animals, birds, plants and flowers. At the main entrance to the garden, you will be welcomed by a century-old huge rain tree (*Samanea saman*) whose outstretched branches appear to extend a warm welcome to you. The main attraction in the garden is the open plant collection that includes the formal garden, herbal garden, sun rockery, palm collection and the bandstand lawn where bands play soothing music to visitors. There are also a number of plant houses which display special collections such as the orchidarium, cactus house, fern house, bougainvillea house and the begonia house. For most visitors, a walk through the garden will surely refresh the mind while for the energetic, a trek through the garden will surely bring you closer to nature.


The Orchid Garden

The Hibiscus Garden

This beautiful garden is located on a hill and occupies over 0.9 hectares near the Lake Gardens, Kuala Lumpur. More than 6,000 hibiscus plants, consisting of 10 species and 80 varieties are found here in various stages of bloom. Just walk through this Garden and learn all about our National Flower – its shape, colour, variety and why and how it was selected as our National Flower.

The Orchid Garden

The rich orchid heritage of Malaysia is housed near the Lake Gardens, on a hill top overlooking the skyline of Kuala Lumpur. Orchids belong to the world's largest family of plants, the orchidaceae. They consist of 25,000 species, of which 3,300 are found in Malaysia. This garden is also host to thousands of hybrids, all growing luxuriantly. The four-acre garden is specially laid out with rock gardens, pergolas, dead tree trunks and wooden stands, all beautifully arranged to support growth of the different species of orchid plants. For instance, the sun loving orchids are found in the open areas while those that prefer the shade are kept under the pergolas with pools and waterfalls to provide a cool environment. Do not be disturbed by the long scientific names that some of these orchids may have. Look for the common names and enjoy the exhilarating and rewarding experience of a stroll through this garden.

Source
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THE MANGROVE FOREST
A Unique Ecotourism Setting

Fishing village located in a mangrove forest

Locally called bakau minyak (Rhizopora apiculata) that has reached maturity

Chalets for tourists amidst a mangrove forest

Kiln for production of high quality charcoal

The mangrove forest is an area inhabited mainly by mangrove trees with their uniform formation in contrast to inland tropical forests. Its landscape is of tropical and sub-tropical formation located along coastal areas. The mangrove tree is an inter-tidal, salt tolerant vegetation found along muddy shores, lagoons and tidal estuaries.

In early times, Christopher Columbus, a Spanish explorer had described the mangrove forest while sailing past the Gulf of Batabao, Cuba. Later on in 1878, Bowman, H.M.M. a biologist introduced 'mangue', a Portuguese word to connote mangrove. In Malaysia, mangroves cover a total area of 436,714 hectares and are found mainly in the northern coast of Sabah, while in Peninsular Malaysia and Sarawak, mangroves are mostly located in the west coast areas.

Interfaced between land and sea, mangroves have the characteristics of littoral plant formations. Mangrove vegetation comprises 11 families and 28 species that include trees, herbs, climbers and shrubs. The vegetation consists of almost pure stands of stilt roots of *Rhizopora* spp. and pneumatopores of *Avicennia* and *Sonneratia* with an understorey of *Bruguiera* spp.

The importance of mangroves lies in their multiple roles to include habitats for wildlife such as mammals, reptiles, amphibians and water birds, both resident and migratory, besides the production of timber for poles and charcoal. Some examples of mammals that live in the forest are primates including long and stump-tailed macaques, silver-leaf monkeys, otters, leopards, civets, cats, bats, dolphins and wild pigs. White bellied sea eagles, several water birds species and kingfishers can be easily spotted here. The mangrove is also credited with maintaining an aquatic ecosystem for all sorts of fish, crustaceans, and insects. Amphibians and reptiles such as crocodiles are quite common in this type of condition. This habitation also provides many amenities recognised beyond its boundaries. Mangroves play an important role in the environmental system, among which includes functioning as a giant filter for water and other effluents and stabilising the shorelines and soil condition from soil loss due to wind and high wave impacts.

Mangrove forest are mainly inhabited by Rhizopora spp.

While the mangrove serves as the main habitat for many lives, a new avenue for tourism is suggested. This forest which is foreign to many people can offer a rich experience based on nature and challenges. People will be able to interact directly with the forest and the wildlife it harbours. Mangroves in the west shores of Peninsular Malaysia are in the flyway path and transitory site for migratory birds to escape from the cold and harsh winter conditions of Central Asia or Siberia. Visitors and bird enthusiasts can observe and appreciate these birds on their migration routes and stopovers. The presence of fireflies has been a tourist attraction where people can enjoy the natural light in the middle of the night. Site tours and interpretations of this unique forest formation can be of high educational and recreational value. For fishing enthusiasts, many types of fish are available. Cruising or boat trips along water canals is an enjoyable experience where visitors could observe various mangrove habitats and its logging and harvesting activities. Ecotourism programmes in a mangrove forest hold the promise of an exciting experiential and enjoyable destination with its inherent scenic, scientific and cultural merits.

Source
Assoc Prof Dr Abdullah Mohd
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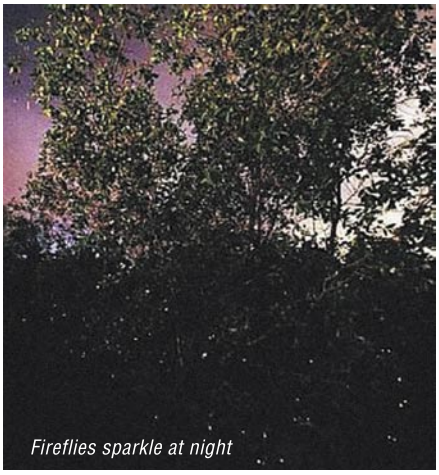
FIREFLIES
Nature's Light Show



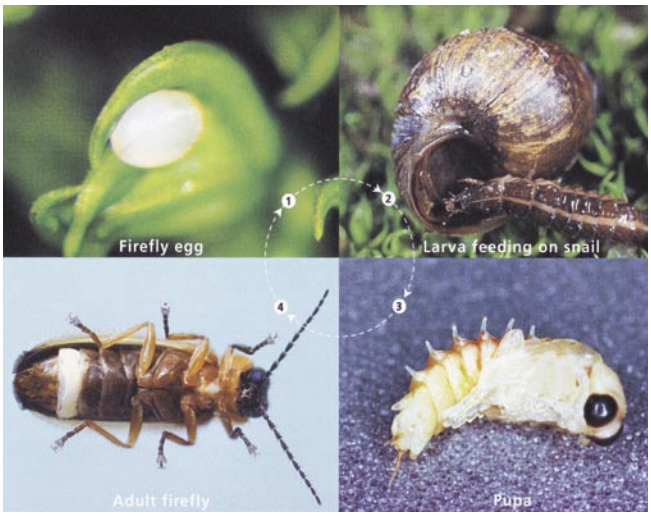
Fireflies sparkle at night

The ecology of the synchronous firefly is dependent on the riverbanks where the leaf litter and fruits is suitable as food for a particular species of snail to feed on. The firefly larvae in turn feed on snails with the female firefly laying their eggs in the moist soil. Everyday new fireflies emerge from their pupa stage into adulthood. The adult fireflies will then fly to the display trees beside the river after dusk and synchronise their flashing for mating purpose. After mating, the successful female will fly back to the muddy banks behind the vegetation and lay their eggs and another batch of emerging fireflies will be ready for the next day.

Therefore, suitable conditions are the moist soil, food (snail), display trees (Berembang), land use and the river water quality. The two major components that are relevant to the survival of the fireflies are land use and water quality. The display trees can only tolerate very low salinity levels or their growth will be retarded. As land use conditions are primarily determined by development pressure and ultimately by the locals, their motivation and inclination vis-à-vis development and conservation should be established.

The longest mangrove stretch of a single firefly species, Pteroptyx tener, is at the Selangor River. Other areas with different synchronous and non-synchronous fireflies, are in the states of Perak (Matang-Kuala Gula, Bernam, Bagan Datoh), Penang (Krian), Kedah (Merbok), Johor (Kota Tinggi, Nenasi, Tanjung Piai), Pahang (Rompin, Kuantan), Terengganu (Yakyah River, Kerteh River – 2 species, Setiu, Penarik), Kelantan (Tumpat, Tok Bali-Pasir Puteh), Sarawak (Bako-Buntal, Oya River), and Sabah (Klias, Kinabatangan).

The Selangor River synchronous fireflies were 'discovered' by a Malaysian Nature Society (MNS) member in 1970. In 1971, MNS helped Kampung Kuantan, Selangor, set up firefly watching with Encik Jalaluddin as the only boat rower. Later 30 other boatmen joined in and a cooperative called Klip-Klip Trading was formed. The establishment of the corporative saw the introduction of the motorboat in 1996. Unfortunately, the motorboat disturbed the wildlife, including the fireflies. A study carried out found that the *Sonneratia caseolaris* (*Berembang*) tree belt was diminishing fast and there was not much young Berembang shoots. Later, the Government took over the cooperative and petrol driven motorboats were banned from the river.



Lifecycle of Firefly (Source: Forest Department Larut Matang, Perak)

An interesting finding is that the plant preference used by fireflies as a display varies, resulting in fireflies congregating in different mangrove trees. For example in Kerteh River, the synchronous fireflies, *Pteroptyx* sp. main colonies are on at least on six to seven types of mangrove trees. In Tok Bali, the *Pteroptyx malaccae* prefer the *Avicennia alba* and *Sonneratia alba*, whereas in the Selangor River, *Pteroptyx tener* prefers the *Sonneratia caseolaris*. Lately, firefly watching tours have been initiated by locals in Krian, Selangor, Kuala Gula, Kuala Sepetang, Kampong Ibok, Klias and Lower Kinabatangan.

The various water supply development activities taking place upstream in Hulu Selangor and in the mid stream at Batang Berjuntai is threatening the fireflies again. The spread of the firefly habitat has already declined due to land clearance, water pollution from industries and other natural factors.

Apart from the fireflies, the riparian forest along the intertidal river is one of the least studied and protected forests. These river corridors are also not protected. There are keystone species in the area e.g. the nectar pollinator bat and the Berembang. The survival of the Berembang is dependent on the bat, which in turn is a pollinator for fruit and forest trees. The fireflies are dependent on the Berembang display trees along the river. The whole ecosystem will be changed once the bats and the trees are lost.

As there is very little firefly research in Malaysia, it is not known as to how many firefly species are in the country. But we do know that the mangroves where the congregating fireflies are located are shrinking. Generally, the nation's firefly conservation efforts are mainly a result of the tourism industry and the importance of the mangroves to offer protection from disasters like the Tsunami and their function as a nursery for fisheries amongst others. State Governments of Selangor, Kedah, Johor, Perak, Terengganu, Penang, Sabah and Sarawak are looking into conserving the mangroves, bringing hope and light for the continued survival of the congregating fireflies.

References

MNS. 1990. Our Special 50th Anniversary Issue. *Malayan Naturalist* 44 :1

MNS. 2001. Firefly studies in Kuala Selangor District. Final Report submitted to the Selangor State Government. Kuala Lumpur. Malaysian Nature Society

Ohba, N &Wong, CH 2004. External morphology and ecological study of the firefly *Pteroptyx tener* at Kampong Kuantan, Selangor, Malaysia. Science Report, Yokosuka City Museum, 51: 1-33

Wong, CH. 2006. Local Community and the Sungai Selangor Firefly in Malaysia. Paper presented at the World Firefly Symposium in Kitakyushu City, Japan, 26 Aug 2006

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BIRD WATCHING

Learning from our Feathered Friends

Group of Cotton Pygmy Goose in flight

The modern life style leaves us little time for anything else but work and more work. Many young executives even take their work home . The result is quite predictable – stress, tension headaches and tantrums. There are several avenues for releasing our tension such as through sports, socialising, outings or going to a play. One of the most enjoyable ways of relaxing with friends or family is to go outdoors and watch birds. Everyone, no matter what age, should learn to relax and enjoy the gifts of nature.

One does not need to be an ornithologist to watch and enjoy birds. Even more persuasive is that you need not go to special places to watch their interesting behaviour. To start with, our backyard or front garden may already hold secrets of at least one bird species. Most people are aware of birds in their neighbourhood but not many would care to watch them. Watching birds or nature with an eye from the mind opens up a new horizon at the way we look at the world. We will eventually get connected to the concept of the web of life and get to appreciate that homosapiens is only one part of the whole. Even if one does not know much about birds, watching them will over time reveal the 'humanity' and 'intelligence' in creatures we deem to have bird brains!

Curiosity may kill the cat but it will stimulate the human mind. When you hear a bird in your garden 'singing' (vocalisation), ask yourself whether the song is intended to be a love call, a challenge to a rival, a proclamation of its territory or a signal to its mate. Combine this audio with visuals of the bird in action and you will get a better picture of why it is 'singing'. Even for an ornithologist, it will take more than a life time to unravel the secrets of our feathered friends.

Gold Whiskered Barbet feeding a chick close to fledgling

To get yourself excited (if you aren't yet), I suggest you join the Bird Group of the Malaysian Nature Society or buy and read anyone of the dozens of books on Malaysian birds, of which the country has 600 species. An investment in a good pair of binoculars is a must if you want to get more serious in identifying species and learning more of their habits. Then you may want to venture out to the various ecosystems to watch specific groups of birds. For example, if you desire to watch the wetland birds then the place to go is the Paya Indah Wetlands, for shore birds, the mudflats of Matang Mangroves in Perak and the ash ponds of the Tenaga Power Station at Kapar, Selangor. Migratory raptors can be spotted in numbers at Tanjung Tuan (Cape Richado, Melaka) during their south and northward movements. For colourful birds, the hill stations of Fraser's and Maxwell (Bukit Larut) in Pahang and Perak respectively offer the best chance of sighting many species in a day's outing. Any rural area that is rich in insects, flowers and fruits will likely be habitats of interesting birds, different from those we see in the parks of the city.

The best time to watch or hear the songs of most birds is in the morning from day break till about 10.00 am. A big bonus will be a big fig tree with fruits especially at the edge of a forest which can attract 15 to 20 species in a day!

4 weeks old chick of the Changeable Hawk-Eagle

A 4-5 weeks old fledge of the Yellow-Vented Bulbul

Bird watching has become a popular hobby and pastime for many urbanites. You can adopt this hobby and contribute to their conservation by keeping records of your observations and sharing them with others.

Source
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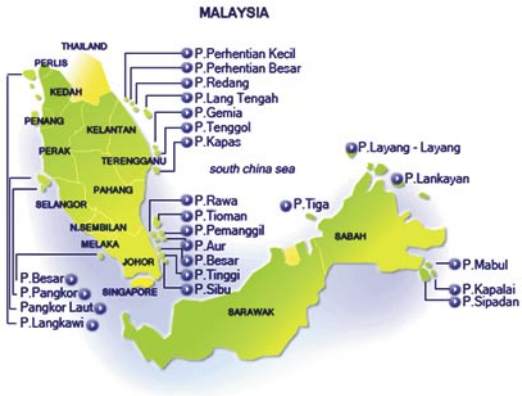
MARINE TREASURES
Our Natural Heritage



In early March this year, I went on my first island vacation with a few friends to Redang Island, better known as Pulau Redang. I was absolutely mesmerized. The crystal clear waters, and colour of the ocean ranging from deep blue to light milky blue especially distinguishable during sunny days astonished us. The 3-day 2-night vacation of experiencing white sandy beaches and prolific snorkelling sites, left us with a blissful feeling of being able to enjoy this gift of nature and humbled by the beauty and charm of these natural treasures of Malaysia.



Islands and Beaches

Comprising Peninsular Malaysia and the states of Sabah and Sarawak, Malaysia rests on the continental shelf of South-east Asia and is blessed with a long and affluent coastline surrounded by many breathtaking islands with incredible biodiversity of marine life. It would be an impossible task to describe every one of Malaysia's thousand over beautiful beaches. Ranging from the powdery stretches of sand that characterise the eastern coastline of Peninsular Malaysia to the black sand beach of Pantai Pasir Hitam and the smooth pebble beach of Pantai Batu Kerikil, Malaysia's shores offer some of the most idyllic locales. In addition to the plenitude of beaches along the Peninsula and the coasts of East Malaysia, the country also possesses over a hundred tropical islands. Langkawi Island and Tioman Island, for instance, lay claim to fame through association with Malay legends that are traced back to hundreds of years. With the Peninsula's long coastline, visitors are spoilt for choice for beaches. Many of Malaysia's beaches are found huddled in secluded islands and coves, making them the perfect place for a peaceful vacation. Water activities are a plenty for those who crave adventure but an alternative would be to slap on some sunscreen, grab a beach towel and soak up the sun.

Dive Destination

With the richest marine environment in the Indo-Pacific Basin, Malaysia is fast becoming one of the leading dive destinations of the world. A dip below the warm sea's surface guarantees an astounding experience with a spectrum of marine life. Top dive sites around Malaysia include diving along gentle sloping reefs, submerged reefs, coral blocks, wall dives, deep dives, drift dives and wreck dives.

The diversity of marine life around the waters of Pangkor Island and Payar Island along the western coast of Peninsular Malaysia differs from those observed in the waters of the islands of Perhentian , Lang Tengah, Redang, Kapas, Tenggol and Tioman in the eastern coast of Peninsular Malaysia. Located some 300 nautical miles from mainland Kota Kinabalu, Sabah, Layang Layang Island is blessed with the best water visibility of 20 to 50 metres. The Tunku Abdul Rahman Park islands are popular for training and easy dives, whereas to fully savour Sipadan Island one should be an advanced diver. Lankayan Island, Mabul Island and Kapalai Island are famous for their 'muck dives' (that is diving in the coral rubble areas seeking out macro animals). Talang Talang Island and Turtle Rock off Sarawak feature reef diving and further away from the mainland, divers can engage in wreck diving Katori Maru (a World War II Japanese troop carrier). From schooling hammerhead sharks, huge schools of barracudas and various turtles to the bizarre frogfish or ghost pipefish, there is always something to fascinate the diver.

Coral Reefs

Coral reefs are massive structures made up of limestone deposited by living organisms. Thousands of species of marine plants and animals inhabit coral reefs, contributing to the structure of coral reefs such as algae, seaweeds and even molluscs. Nevertheless, the most important reef-building organisms are corals. Corals actually consist of tiny spineless animals called coral polyps. Coral polyps may range from the size of a pinhead to about 30

centimetres in diameter. Thousands of these polyps exist together to form colonies.

South-east Asia, where the environmental conditions are suitable for corals to flourish, is considered to be the global epicentre of marine diversity. It is home to almost 100,000 square kilometres of coral reefs, equivalent to 34% of the world's total, accommodating over 600 of the 800 reef-building coral species in the world. Of this figure, about 350 coral species inhabit Malaysian waters, with Sabah containing more than 75% of the country's reefs. To survive, corals require sunlight, clear and clean water, optimum water temperatures of 20˚C to 32˚C and saltwater. Corals grow extremely slowly. For example, some species grow as slow as 5-25 millimetres/year while species such as the Staghorn coral may grow up to 20 centimetres in one year under suitable conditions. Coral reefs are fragile systems, as decades of growth could be destroyed even if a small reef fragment is snapped off.

Several natural disturbances too can cause significant damage to coral reefs. Natural calamities such as hurricanes or typhoons bring large and powerful waves causing large corals to break apart and scatter fragments about the reefs. Regrettably, coral reefs around the world are currently facing the biggest threat from activities either directly or indirectly linked to humans such as coastal development and sedimentation, water pollution, destructive fishing practices, careless tourism, ocean warming and coral bleaching.

Importance of Coral Reef Conservation

As one of the planet's most complex ecosystems, coral reef organisms construct huge and intricate physical structures that house nearly one quarter of all known marine species, rivaling rainforests in their richness of life.

For example in Malaysia, there are approximately 450 coral reef fish species, which include such important species as *Pomacentridae* (damselfish). The 101 species of damselfish found in Malaysia constitute 82% of the total from Indonesia and 86% of the total from the Philippines. Hence, the coasts of Malaysia are rich in fish species and are a globally valuable area of fish biodiversity.

Many countries with coral reefs depend on them as a significant source of income through tourism and fisheries. The variety of marine organisms and protected beaches supported by coral reefs provide an attractive surrounding for sightseers, sunbathers, snokellers, and scuba divers, as well as providing a wealth of food resources for the local communities. For example, the coral reefs in the Malacca Straits alone have been said to hold a total assessed

economic value of USD563 million for tourism, shoreline protection, fisheries, and research potential, whereas the sustainable value of South-east Asia's coral reef fisheries on the whole is estimated at USD2.4 billion per year. As in the case of rainforest species, coral reef plants and animals contain medicinal compounds, many of which have just been discovered. It is less commonly known that healthy coral reefs also protect our coastlines. Reefs act as a buffer, shielding inshore areas from the pounding of ocean waves. Without coral reefs, many beaches and coastal buildings would become vulnerable to wave action and storm damage, and eventually erode.

Conservation Action in Malaysia

Realising the incredible value of coral reefs, and under a government directive in 1983 to conserve and protect coral reefs for sustainable fisheries, tourism, and research, the Department of Fisheries Malaysia has established marine parks. Currently, there are 136 marine protected areas, containing 7% of the country's coral reefs. These national parks are situated around 40 islands in Peninsular Malaysia and Sabah, which are grouped together for better management.

Marine Park Centres in Peninsular Malaysia

1. Payar Island Marine Park in Keda
2. Redang Island Marine Park in Terengganu
3. Perhentian Island Marine Park in Terengganu
4. Tioman Island Marine Park in Pahang
5. Tinggi Island Marine Park in Johor
6. Mersing Marine Park in Johor

Observing Proper Reef Etiquette when Diving or Snorkelling

Coral reefs are home to many beautiful, fascinating creatures. Snorkelling or diving is a great way to explore this spectacular undersea world but it must be done carefully as reefs are very fragile and easily damaged.

- Avoid touching the coral. A single kick can break coral and destroy years of growth. Even a light touch can rub off the coral's protective mucus covering, leaving it vulnerable to infection and disease.
- Never stand on coral.
- Ensure that your body and flippers do not touch the reef.
- Avoid finning close to the seabed as this kicks up silt that can smother the coral.
- Avoid harassing reef life; reef animals are easily stressed and harassing them can disrupt feeding or mating.
- Avoid collecting souvenirs. Even dead coral plays an important role in the reef ecosystem and should not be taken.
- Avoid littering; litter endangers marine life and spoils the reefs natural beauty.
- Throw litter in a bin or take it back with you.
- Avoid anchoring on the reef anchors or smashing coral as it will damage large areas of the reef.
- Ensure that your boat uses a mooring buoy.

Hawksbill Turtles

Commonly addressed as Hawksbill turtles or locally known as penyu karah/sisik, they belong to the Cheloniidae family and are usually 70-90 centimetres in length, weighing 40-60 kilograms. These turtles are threatened by the loss of nesting and feeding habitats, excessive egg-collection, fishery-related mortality, pollution, and coastal development. In other parts of the world, commercial trade of hawksbill products is still rampant despite their protection under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

For decades, efforts to save the Hawksbill turtles have been focussed on safeguarding their eggs and ensuring the production of hatchlings to help increase their population. No one knows exactly where female Hawksbills go after nesting for the season or even where they go to forage for food. They were once thought to be less migratory than other species of marine turtles. However, recent scientific research has shown that some populations of Hawksbills do migrate hundreds to thousands of kilometres in search of food.

Distribution in Malaysia

The largest population of Hawksbill turtles is found in the Turtle Islands of Sabah. In Peninsular Malaysia, the sandy coastline and islands of Melaka is home to the largest nesting group, numbering as much as 200-300 nests every year. This species also nests in smaller numbers in Johor and Terengganu.

Breeding

Research conducted in other parts of the world has shown that Hawksbills appear to nest every two to three years. They lay 60 to 200 eggs at a time. Nesting is seasonal and peaks from May to August every year in Melaka. The Hawksbill often nests close to coral reefs, and can be encountered by snorkellers and scuba-divers at localities where turtle habitat is in a good condition. Hawksbill turtles are an important biological component of coral reefs. They feed on invertebrates, with a preference for sponges. As they feed on prey from crevices on the reef, they inadvertently dislodge pieces from coral surfaces, thus allowing opportunistic reef fish to feed in the process.

In August 2006, there was a move to track the movements of this magnificent creature by attaching a satellite transmitter to its carapace. Two Hawksbills nesting on Upeh Island and one from Tanjung Dahan beach in Melaka were to be tracked using the Argos satellite system as they make their way back to feeding grounds. The first transmitter was successfully deployed on a female Hawksbill at the Tanjung Dahan beach, one of the prime nesting rookeries of Kuala Linggi in the early hours of 26 August 2006, after her nesting of 114 eggs. The second satellite transmitter was deployed on a Hawksbill nesting on Upeh Island on 29 August 2006. This is the first time a Hawksbill in the Malacca Straits has been tagged and the data transmitted should give scientists valuable information to identify how far they go to forage for food and highlight protection of their feeding grounds.

Tourism and Ecology

Tourism is one of the world's largest industries and is growing significantly. More and more people are interested in exploring new and far-away destinations and cultures. Ecologically sensitive areas, those areas where natural resources are critically endangered by physical changes and those which contain a great diversity and interdependence of living habitats, have been experiencing a tremendous increase in visits. Sensitive areas hold the main assets on which the tourism industry depends, so conservation is the path to take. We do not have a choice. Any changes in the component of an ecosystem will have unpredictable effects on the entire system.

Tourism planning should not occur in isolation but must be integrated into the overall policy for sustainable development. As pointed out in the UNEP's key principles for the tourism industry, most relevant to minimising coastal/nearshore physical alteration are destruction of habitat, and sediment mobilisation. Tourism planning should be multi-sectoral and integrated into national development and land use planning. The challenge for the tourism industry, conservationists and development organisations is to jointly develop and implement a mix of management strategies to promote environmentally sustainable tourism development in the coastal areas.

Treasure the gift of nature, they are the pillars of our existence;
Treasure the gift of diversity, they have been entrusted by God himself for us to love;
Treasure the gift of self, for we are beautiful in the eyes of God;
With these gifts, we are wealthy beyond imagination.

-Anonymous-

References

2002. Lauretta Burke (WRI), Liz Selig (WRI), and Mark Spalding (UNEP-WCMC, Cambridge, UK). *Reefs at Risk in South-east Asia.*

http://www.coralcay.org/expeditions/marine/my1/photogallery/

http://www.coralreefalliance.org

http://www.coralreef.org

http://www.wri.org

http://www,nre,gov.my

http://www.ioseaturtles.org

http://www.wwfmalaysia.org

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Activity Highlights

Department of Environment, Malaysia

January 2007

The Sustainable School – Environment Award 2005/2006

The Sustainable School – Environment Award, a collaborative programme between the Department of Environment and the Ministry of Education Malaysia to promote environmental awareness within the school community was jointly launched on 27 January 2005 by the Ministry of Natural Resources and Environment and the Ministry of Education. The Institute for Environment and Development (LESTARI) of Universiti Kebangsaan Malaysia (UKM) provided the technical support for the purpose.

For the 2005/2006 Award, 67 schools voluntarily participated. The award giving ceremony for the Sustainable School – Environment Award 2005/2006 programme was held on 29 January 2007 at Sekolah Menengah Datuk Peter Mojuntin, Penampang, Sabah. The ceremony was officiated by YB. Dato' Sazmi Miah, the Parliamentary Secretary of Ministry of Natural Resources and Environment. Sekolah Menengah Datuk Peter Mojuntin and Sekolah Jenis Kebangsaan (C) Chi Hwa emerged as the first recipients of the Sustainable School – Environment Award 2005/2006 for the secondary and primary schools categories respectively. Both schools received a plaque together with RM 10,000 in cash and certificate of commendation.

March 2007

Sustanable City – Environment Award 2005/2006 : Independent Assessment Panel Workshop

In collaboration with the Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia (UKM), the Department of Environment (DOE) organised an Independent Assessment Panel Workshop for The Sustainable City – Environment Award at Danau Golf Club, UKM, Bangi on 28 March 2007. The primary objective of this workshop was to brief the independent panel on the procedures to conduct a detailed assessment during field visits to selected cities.

Participants to the workshop were also tasked to assess the brief city reports and award marks accordingly based on environmental information provided. The Panels consisted of members from different areas of expertise (NGOs, Government, the Private Sector and Academia). These Panels were established for the three categories: (i) Capital Cities, (ii) Municipal / Town Councils and (iii) District Councils. Field assessments were conducted and the Award Ceremony is scheduled for August/September 2007.

Upcoming Event

17th Inter-University Environmental Debate

The 17th Inter-University Environmental Debate will be held from 27 July 2007 to 31 July 2007 at Universiti Sains Islam Malaysia (USIM), Nilai, Negeri Sembilan. The Final Debate will be officiated by YB. Dato' Seri Azmi Khalid, Minister of Natural Resources and Environment.

Forthcoming Issue

The UN-sponsored Inter-Governmental Panel on Climate Change has issued a series of reports early this year, drawing on the studies of some 2,500 scientists on the harsh realities of global warming. Quite obviously, Governments have to move quickly to educate their people and commit resources to prevent the worst outcome. The 2nd issue of IMPAK will therefore impart information on the likely effects of global warming on all of us so that the people can play their role in warding off the catastrophic effects of global warming.

Article contributions and comments are welcomed. They are to be directed to : lingchui@doe.gov.my
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