Government of Malaysia

Ministry of Natural Resources and Environment

Fifth National Report to the Convention on Biological Diversity



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5TH REPORT TO CONVENTION ON BIOLOGICAL DIVERSITY

This report is prepared by the Ministry of Natural Resources and Environment, Malaysia in accordance Article 26 of the Convention and decision X/10 of the Conference of the Parties of Convention on Biological Diversity (CBD).

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The MyBioD logo which was launched by the Ministry of Natural Resources and Environment in 2012. This logo serves as a vehicle to brand Malaysia's rich biodiversity and to internalise the appreciation for this natural heritage with the view of generating awareness in line with the 1st Aichi Biodiversity Target.

Abbreviations

ABS	-	Access and Benefit Sharing
CBD	-	United Nations Convention on Biological Diversity
CFS	-	Central Forest Spine
DMPM	-	Department of Marine Park Malaysia
DOA	-	Department of Agriculture
DOE	-	Department of Environment
DOF	-	Department of Fisheries
DWNP	-	Department of Wildlife and National Parks
DVS	-	Department of Veterinary Services
EIA	-	Environmental Impact Assessment
EPU	-	Economic Planning Unit
ESA	-	Environmentally Sensitive Areas
FDPM	-	Forestry Department Peninsular Malaysia
FRIM	-	Forest Research Institute Malaysia
FSC	-	Forest Stewardship Council
GAP	-	Good Agricultural Practices
GEF	-	Global Environment Facility
GDP	-	Gross Domestic Product
GTFS	-	Green Technology Financing Scheme
GTP	-	Government Transformation Programme
HCVF	-	High Conservation Value Forest
HoB	-	Heart of Borneo
IAS	-	Invasive Alien Species
MARDI	-	Malaysian Agricultural Research and Development Institute
MER	-	Managed Elephant Ranges
MOA	-	Ministry of Agriculture and Agro-based Industry
MOSTI	-	Ministry of Science, Technology and Innovation
NBC	-	National Biodiversity Council
NBSAP	-	National Biodiversity Strategies and Action Plans
NCSA	-	National Capacity Self-Assessment

NECAP	-	National Elephant Conservation Action Plan
NEM	-	New Economic Model
NFP	-	National Forestry Policy
NGO	-	Non-governmental Organization
NPBD	-	National Policy on Biological Diversity
NPP	-	National Physical Plan
NRE	-	Ministry of Natural Resources and Environment
PAs	-	Protected Areas
PGRFA	-	Plant Genetic Resources for Food and Agriculture
PIC	-	Prior Informed Consent
PFE	-	Permanent Forest Estate
PRFs	-	Permanent Reserved Forests
SaBC	-	Sabah Biodiversity Centre
SBC	-	Sarawak Biodiversity Centre
SCP	-	Sustainable Consumption and Production
SFC	-	Sarawak Forestry Corporation
SFD	-	Sabah Forestry Department
SFM	-	Sustainable Forest Management
TK	-	Traditional Knowledge

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Executive Summary

Being the 64th nation to ratify the Convention on Biological Diversity in June of 1994, Malaysia remains steadfast in implementing its commitment under the Convention.

Since the last reporting period in 2010, Malaysia has made much progress and taken many strides towards achieving effective biodiversity conservation, protection and management.

At Part One of this report, the overview of Malaysia's species richness; both in flora and fauna validates and confirms Malaysia's place in the world as being one of the most mega diverse countries. Various efforts are being pursued at the Federal and State levels to ensure that the multiple and complex ecosystems are conserved. Part One of the report include status and updates in accordance with the CBD thematic areas which consist of mountain biodiversity, inland waters biodiversity, marine and coastal biodiversity, agricultural biodiversity and forest biodiversity. Forest biodiversity has been given particular importance and contain more elaborated data; which is warranted in view of the vastness and importance of tropical forest biodiversity in the country as well as in the global context.

Malaysia continues on the well-established trajectory in relation to forest biodiversity conservation through the establishment of Permanent Reserved Forest (PRF)/Permanent Forest Estates (PFE). Peninsular Malaysia, Sabah and Sarawak, using various legislative instruments constitute PRF/PFE as the primary *in-situ* means of protecting biodiversity. At the time of reporting, collectively Malaysia has recorded around 14.5 million hectares of PRF/PFE. Malaysia remains committed to maintain at least 50% of its land area under forest and tree cover in perpetuity. Recognition is also given to the concept of High Conservation Value Forests as well as the protection of critical ecosystem such as water catchments. In addition to the establishment of Permanent Forest Reserves, Malaysia also constitutes various networks of protected areas (both terrestrial and marine) in order to secure biodiversity protection. These in a nutshell include Wildlife Sanctuaries/Reserves, National Parks and State Parks, Nature Reserves, and Protection Forests within Permanent Forests Reserves.

Marine protected areas despite small in its overall coverage in hectares (1.4%) in comparison to Malaysian waters of about 453,186 km^2, nevertheless harbours great marine biodiversity ranging from coral reefs to marine mammals such as dugongs. The proposed gazettal of the Tun Mustapha Marine Park in the state of Sabah is estimated to contribute over 1.0 million hectares of marine protected areas in the nation.

Malaysia has since the last reporting period picked up the pace in relation to mammal protection. More effective protection of species from a regulatory standpoint was achieved through the passing of the Wildlife Conservation Act 2010 which repealed the Protection of Wildlife Act 1972. This new stronger and more punitive law was introduced to act as a deterrent to wildlife offences particularly in relation to illegal wildlife trade. Peninsular Malaysia also embarked on its first ever Red List for Mammals using indicators and criteria suited to the local

context. Commitment to species conservation is further strengthened through various action plans. Since the last reporting period, a number of action plans have been developed and currently being implemented namely the National Tiger Conservation Action Plan (NTCAP), The National Elephant Conservation Action Plan (NECAP) for Peninsular Malaysia, the Orang utan Action Plan 2012-2016, and the Elephant Action Plan for Sabah 2012-2016. When fully implemented, these actions plans are expected to halt the decline and further loss of the species, recover species populations and prevent habitat degradation. The status and trends of marine turtles conclude Part One of the report.

Part Two of this report highlights and outlines a number of key milestones in relation to the implementation of the National Biodiversity Strategies and Action Plans (NBSAP), otherwise known in Malaysia as the National Policy on Biological Diversity 1998. Macro level mainstreaming approaches have been prescribed through the document known as the Common Vision on Biodiversity primarily positioned as the guiding tool for policy makers and planners in relation to biodiversity planning and management. With regard to development planning and the categorisation of areas for development and for conservation purposes, the National Physical Plan 2 (NPP-2) was adopted in 2010. The document guides development at all levels of planning and many of the measures for sustainable development are to be translated in Structure and Local Plans.

The policies developed since the last reporting include the National Policy on Climate Change, The National Water Resources Policy, the National Green Technology Policy, The National Agro Food Policy, the National Action Plan for Peatlands and the National Action Plan on the Prevention, Eradication and Containment of Invasive Alien Species in Malaysia.

Since the last reporting, a number of laws have been enacted and some are being developed. These include the Wildlife Conservation Act 2010, now in operation as the latest wildlife protection framework in Peninsular, the development of the draft national legal framework on Access to Biological Resources and Benefit Sharing and amendments to the Environmental Quality Act 1974. In 2012, Malaysia has for the first time established environmental courts with the objective of providing swifter adjudication of environmental offences.

Part Three of the report highlights Malaysia's effort in updating its National Policy on Biological Diversity 1998. The second generation NBSAP, is expected to be ready before the end of 2014, will incorporate the Aichi Biodiversity Targets within the national context. Part Three of the report showcases multiple initiatives that contribute towards the implementation of a number of key Aichi Biodiversity Targets. The initiatives highlighted include the Central Forest Spine Master Plan, whereby its implementation will ensure that that key forest complexes that harbour much of Peninsular Malaysia's biodiversity and ecosystem functioning is intact. The Heart of Borneo Initiative covering approximately 200,000 km^2 of ecologically connected forests in Malaysia, (represented by states of Sabah and Sarawak amounting to 61,000 km^2), Indonesia (Kalimantan) and Brunei contributes to several Aichi Biodiversity Targets. Various goals and programs under this trans-boundary agreement is implemented in Malaysia by the States of Sabah and Sarawak

through State level Strategic Plans and make significant contributions towards forest biodiversity, ecosystem and species protection.

Marine biodiversity related initiatives equivalent to the Heart of Borneo Initiative is the Coral Triangle Initiative which Malaysia committed to since 2009. Although primarily vesting it efforts within the Sulu Sulawesi Seas off the coast of Sabah, the CTI's primary goals serve to implement a suite of actions related to biodiversity protection particularly in such areas as establishment and management of marine parks, sustainable fisheries, marine enforcement as well as awareness building.

The 5th National Report also highlights a number of achievements in relation to traditional knowledge documentation. Largely led by research institutions and state level biodiversity centres, progress towards documentation of traditional knowledge are executed with the participation and consultation of traditional knowledge holders.

Lastly, the 5th National Report is drawn to close by highlighting key lessons learned from the implementation of the Convention in the country.

1. INTRODUCTION

This report serves as Malaysia's 5th National Report to the Convention on Biological Diversity (CBD) with the overall objective of informing the CBD Secretariat on the implementation of the Convention and relevant outcomes and initiatives of the country pertaining to the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets. This report provides relevant information on Malaysia's efforts on biodiversity and is structured into three main parts:

Part One - An update on biodiversity status, trends, and threats and implications for human well being.

Part Two - The National Biodiversity Strategies and Action Plans (NBSAP), its implementation and the mainstreaming of biodiversity.

Part Three - Progress towards the 2015 and the 2020 Aichi Biodiversity Targets.

The main components of the report consist of the following:

- Introduction to Malaysia as a country
- Overview of policy and biodiversity governance in Malaysia
- Overview of Malaysia's rich biological diversity

1.1 MALAYSIA – COUNTRY OVERVIEW

Malaysia is a tropical country that belongs to the Sundaland biogeographical region. Malaysia covers an area of about 33.27 million hectares, consisting of Peninsular Malaysia, the states of Sabah and Sarawak in the eastern region and the Federal Territory of Labuan in the north-western coastal area of Borneo Island. The two regions are separated by about 540 kilometres of the South China Sea. Malaysia lies entirely in the equatorial zone and the average daily temperature throughout Malaysia varies from 21^0C to 32^0C. Malaysia's multi-racial and multi ethnic population is estimated at 29.7 million in 2013.

Map 1: Malaysia comprising of Peninsular Malaysia, Sabah and Sarawak

Malaysia practises a system of Parliamentary democracy with a constitutional monarchy. The country has three branches of government, namely the Executive, the Legislature and the Judiciary. The Malaysian Parliament is made up of His Majesty the Yang di-Pertuan Agong (the King), the Upper House of Senate with 70 members and the House of Representatives (lower house) with 222 members. The general election for the 222 members of the lower house is held every five years.[1]

The Supreme Law of the country is the Federal Constitution of Malaysia, where it provides that the authority to legislate for matters relevant to biological diversity falls under the jurisdiction of the Federal and State Governments. Some subject matters pertaining to natural resources such as land and forests fall under the responsibility of the State Governments.

1.2 BIODIVERSITY POLICY AND GORVENANCE OVERVIEW

Malaysia ratified the CBD in 1994 and developed the National Policy on Biological Diversity (NPBD) in 1998. Alongside its obligations under the CBD, Malaysia has been integrating biodiversity conservation as an integral part of sustainable development, a consistent policy component of the 5 year development plans of Malaysia.[2] Malaysia advocates a development path that emphasises conservation aspects while striving to achieve socio-economic development goals.

[1] Economic Planning Unit of Malaysia
[2] Malaysia is currently into the 10th Malaysia Plan

Malaysia has a number of key policies pertaining to the environment and biodiversity that have been steadily developed and implemented.

These include:-

- **The National Forestry Policy 1978** - (currently under second revision) aims to conserve and manage the nation's forest based on the principles of sustainable management and to protect the environment as well as to conserve biological diversity, genetic resources, and to enhance research and education.

  The Policy prescribes for a clear classification system for Permanent Forest Estates (now refers as Permanent Reserved Forest), with associated management standards. It also provides for:

  a) the conservation of biological diversity and areas with unique species of flora and fauna;
  b) development of comprehensive programmes in community forestry;
  c) promotion of active local community involvement in forestry management projects; and
  d) support for intensive research programmes in forestry and forest products.

- **The National Policy on Biological Diversity 1998** - (which serves as the current NBSAP for Malaysia and is currently being revised) aims to conserve Malaysia's biological diversity and to ensure that its components are utilised in a sustainable manner for the continued progress and socio-economic development of the nation.

- **The National Policy on the Environment 2002** - aims at achieving continued economic, social and cultural progress in Malaysia and enhancing the quality of life of its people, through environmentally sound and sustainable development. One of its three objectives is to 'conserve Malaysia's unique and diverse cultural and natural heritage with effective participation by all sectors of society. A broad-based strategic approach is adopted to promote environmental soundness through research and development, economic efficiency, social equity, responsibility and accountability.

- **National Wetlands Policy 2004** - (which is currently under revision) aims to ensure conservation and the wise-use of the wetlands to benefit from its functions, as well as fulfil Malaysia's obligations under the RAMSAR Convention. The policy's objectives include:
  a) protection and conservation of different types of wetlands;
  b) integration of wetlands conservation interests into overall natural resource planning;
  c) increase scientific and technical knowledge and public appreciation of wetlands functions and benefits; and
  d) restoration of degraded wetlands.

- **National Biotechnology Policy 2005** - provides a framework to harness the benefits of biotechnology development that is in accordance with established social and ethical norms. One of its main objectives is to create greater values from agriculture and natural resources utilising unique biodiversity and environmental assets.

The Ninth Schedule of the Federal Constitution identifies the authority to legislate over a 'subject matter' through what is known as a Federal List (where the Federal government legislates), a State List (where the State Government Legislates) and a Concurrent List (which prescribes shared legislative powers between State and the Federal Government.) Though the term biodiversity is not provided for in the Constitution explicitly, recognition of the various components of biodiversity such as forests, fisheries, land and wild animals are present under these various lists. The protection of wild animals and wild birds for example which fall under the Concurrent List would have the effect of legislative authority resting over that subject matter with both the Federal and State Governments.

From umbrella institutional view point on biodiversity governance, the previous National Biodiversity-Biotechnology Council is now known as the National Biodiversity Council (NBC) with a more focused function on biodiversity related issues. Specifically the NBC would determine and endorse the direction, policy and strategies for conservation of biodiversity. The NBC is chaired by the Deputy Prime Minister and serves as a platform discussion and dialogue on biodiversity matters between the federal and state governments.

Malaysia has an excellent track record in relation to legal frameworks that govern a wide array of biodiversity related aspects both at the Federal and State levels. These include sector and issues based legislation at the Federal level such as the Environmental Quality Act 1974, the Pesticide Act 1974, the Fisheries Act 1985, the Wildlife Conservation Act 2010, the Biosafety Act 2007, the International Trade in Endangered Species Act 2008, the Land Conservation Act 1960, the National Land Code 1965, the National Parks Act 1980 and the National Forestry Act 1984. The State of Sabah has laws such as the Sabah Parks Enactment 1984, the Forest Enactment 1968, and the Sabah Biodiversity Enactment 2000. The State of Sarawak has instituted laws pertaining to biodiversity such as the National Parks and Nature Reserves Ordinance 1998, the Forest Rules 1962 and the Wildlife Protection Ordinance 1998.

1.3 OVERVIEW OF MALAYSIA'S BIODIVERSITY

Malaysia is recognised as one of 12 mega-diverse countries in the world. The global significance of Malaysia's biodiversity is reflected through the representation of several G200 Ecoregions in East and West Malaysia, including tropical lowlands, mangroves, peat and montane forests as well as its marine ecoregions (the Sulu-Sulawesi Marine Eco-region and the Andaman Sea).

Malaysia is blessed with vast arrays of ecosystems. The tropical rainforests of Malaysia, constitute the core of biodiversity in Malaysia. Its forests are a unique natural heritage which has evolved over 130 million years, resulting in very rich flora and fauna.[3] Fauna diversity in Malaysia is high. There are 306 species of wild mammals, more than 742 species of birds, 567 species of reptiles, 242 species of amphibians, more than 449 species of freshwater fish and more than 150,000 species of invertebrates.[4]

The flora diversity in Malaysia is not absolutely known but is nonetheless exceptionally rich. A conservative estimate could consist of around 15,000 species. In Peninsular Malaysia for example, well over 26% of the tree species are endemic.[5] Higher endemism is known in the herbaceous flora with some of the larger genera estimated to be endemic in more than 80% of their species. The tree flora list was revised in 1989 and stands at 2,800 species in 100 families. A checklist for vascular plants which was published in 1995 for Peninsular Malaysia catalogues this to be around 8,893 taxa (species, subspecies and varieties) which cover over 8,200 native and 690 naturalised species in Peninsular Malaysia.

In Sabah, the iconic Mount Kinabalu alone has listed over 5,000 plant species and 40% of them exhibit endemism. Orchid flora in Borneo which was published in 1994 indicates that there are 1,400 species in 149 genera. In 2009, it was estimated that the tree flora of Sabah and Sarawak combined had documented about 1,500 of the 4,000 tree species known to occur in these states. The total flora of Sabah and Sarawak is estimated to be at 12,000 species.[6]

Malaysia's marine ecosystem covers highly diverse habitats especially its coral reefs. Most reefs occur in the coastal zones and consequently, making it the most biological diverse area. Malaysia alone is reported to house 612 species of corals.[8] This accounts for 77 percent representation of the world's coral species. The coral reef in Malaysian waters[9] is also home to no less than 700 species of fish. Four (4) out of the 7 species of marine turtles are found to be nesting on Malaysian beaches. The 4 species are the Green Turtle, the Hawksbills, the Olive Ridley and the Leatherback Turtle.

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[3] Biodiversity in Malaysia, Ministry of Natural Resources and Environment publication
[4] Ministry of Natural Resources and Environment, Malaysia
[5] National Policy on Biological Diversity 1998
[6] National Strategy for Plant Conservation 2009
[8] Kamarruddin *et al*, 2011.
[9] Fishbase, 2011.

Table 1: Summary of Malaysia's overall biodiversity richness

GROUP	ESTIMATED SPECIES
Mammals	306
Birds	742
Reptiles	567
Amphibians	242
Marine Fishes	1,619
Freshwater Fishes	449
Invertebrates	150,000
Vascular Plants	15,000
Fungi	4,000
Mosses	522
Hard Coral	612

Source: Ministry of Natural Resources and Environment, 2013

2. PART ONE - AN UPDATE ON BIODIVERSITY STATUS, TRENDS, AND THREATS AND IMPLICATIONS FOR HUMAN WELL-BEING

This section details specific actions on securing forest biodiversity in the country, protected areas status and trends (both terrestrial and marine), updates on iconic species status, trends and threats.

2.1 CBD Thematic Overview of Biodiversity in Malaysia

2.1.1 Forest Biodiversity

Forest biodiversity in Malaysia consists of lowland evergreen forest, lowland dipterocarp forest, heath forests, limestone forests, mixed dipterocarp forests, hill dipterocarp forests and hill mixed dipterocarp forest.

Malaysia is committed to maintain at least 50% of her land area under forest and tree cover in perpetuity as pledged under the 1992 Rio Earth Summit. This is attained through the protection of forests and the application of Sustainable Forest Management (SFM) practices. In 2012, approximately 21.01 million hectares or 63% of Malaysia remains forested. Of this area, approximately 14.5 million hectares have been designated as PRF/PFE. With regards to land capability and overall land use, it is noted that there is a need for further development to meet the requirements of a growing population and the country's socio economic development agenda.

Malaysia has benefited tremendously from her forest resources. The rich diversity of the forests has contributed direct economic benefits derived from timber products and other non-timber forest produce. Certain indigenous plants, animals and their derivatives have long been used in traditional medicine by various ethnic and indigenous groups in Malaysia.

The total export earnings from timber and timber products in 2012 amounted to US$6.16 billion[10]. The forestry sector contributed US$2.93 billion or 1 percent to Malaysia's Gross Domestic Products (GDP) of US$286.96 billion in 2012.[11] In 2012, the forestry sector in Peninsular Malaysia provided direct employment to 37,443 persons in various industries.

[10] Malaysian Timber Industry Board (web reference)
[11] Forestry Department Peninsular Malaysia Annual Report 2012

2.1.2 Mountain Biodiversity

The montane and sub-montane forests of Malaysia differ according to elevation in their appearance, structure and floral and faunal composition. Forests below 1,200 metres elevation are composed primarily of lowland and hill dipterocarp forest. At approximately 1,200 to 1,500 metres elevation, lower montane forest gradually begins to replace hill dipterocarp forest. At around 1,800 metres elevation, lower montane forest gives way to upper montane forest and mossy forest. Subalpine vegetation can be found at around 2,900 metres and alpine vegetation, beyond the 3,500 metres mark.

Eight (8) mountain ranges are present in Peninsular Malaysia, namely the Nakawan, Kedah-Singgora, Bintang, Keledang, Titiwangsa, Benum, Tahan and Timur Ranges. Collectively, these highlands make up close to 20% of the land area of Peninsular Malaysia. The general alignment of the mountain ranges is in a north-south direction. The Main Range, also known as the Banjaran Titiwangsa, is the largest, most prominent and continuous mountain range in Peninsular Malaysia. It stretches approximately 500 km from the border of Malaysia with Thailand in the north to Negeri Sembilan where its height decreases and merges into the State of Malacca's coastal plain.[13]

In Sabah, at least 12 different vegetation types are found throughout the State based on elevation and soil type. Since the overall topography of Sabah is mountainous, mountain biodiversity is very vast and important. The iconic Mt. Kinabalu which stands at 4,095 metres is comparatively well studied and has recorded plant species richness to be over 5,000 species (2.5 % of world flora) in an area less than 30 km^2 x 40 km^2.

Image 1: Mount Kinabalu is a jagged granite massif and is the highest mountain in South-East Asia within The Kinabalu Park. The park is also a UNESCO World Heritage site. Photo: Tourism Malaysia

The State of Sarawak can be classified topographically into three principal terrain groups: the alluvial coastal plain, the mountainous interior and the central belt of generally undulating country between the coastal plain and the interior. Sarawak's mountain ranges rises to over 1,500 metres and thereby forms the divide between Sarawak and Kalimantan (Indonesia).

The highest peaks in Sarawak are Murud at 2,424 metres and Mulu at 2,371 metres. Around 37% of the state is over 300 metres in elevation. The highlands form the headwaters of most of the

[13] Study for the Sustainable Development of the Highlands of Peninsular Malaysia Final Report, Economic Planning Unit

major rivers that flow within Sarawak. The Kelabit Highlands are the headwaters for the important Limbang and Baram rivers in Sarawak. The mountains located in the east side of the State receive the highest rainfall in Malaysia, at times exceeding 4,000 mm in a year.

There are outstanding geological and geomorphological features of the Sarawak highlands such as the Mulu Caves which is a UNESCO World Heritage site, the volcanic tablelands of the Usun Apau and Linau- Balui, as well as the spectacular peaks of Mount Murud and Batu Lawi that are formed by massive sandstone of the Meligan Formation.

In relation to land use patterns, the Sarawak highlands is characterised by large expanse of forested areas, with scattered settlements along river valleys. Smallhold agriculture is situated at close by settlements, on gentler slopes and river basins. National Parks and other Totally Protected Areas are mostly concentrated on the northern region, and these include the Gunung Mulu National Park, Pulong Tau National Park, Lanjak Entimau Wildlife Sanctuary and the Batang Ai National Park.[15]

The major threat to montane flora and fauna is habitat destruction. The development of various type of infrastructures impact the conservation of natural montane flora and fauna communities. By assigning an Environmentally Sensitive Area (ESA) rating of 1 to all land areas above the elevation of 1,000m, the National Physical Plan (NPP) addresses the conservation of highland biodiversity by managing development and habitat loss in sub-montane and montane ecosystems in Peninsular Malaysia. Multiple protected area approaches are used to protect mountainous areas across Sabah and Sarawak as well.

2.1.3 Inland Waters Biodiversity

Inland waters biodiversity can be categorised as peat swamp forests, freshwater swamp forest, riparian forests, rivers, ponds, and lakes. They also include streams, groundwater, springs, cave waters, floodplains, as well as bogs, marshes and swamps; which are traditionally grouped as inland wetlands. Malaysia's estimated total wetland area excluding lakes, oxbow lakes, river systems, sandy beaches, rocky shores and coral reefs is 5.19 million hectares.[16]

As a signatory to the RAMSAR Convention, one of Malaysia's obligations is to designate wetlands of international significance as RAMSAR sites within the country. To date, six (6) RAMSAR sites have been designated in Malaysia. These sites are Tasek Bera in Pahang, Pulau Kukup, Sungai Pulai and Tanjung Piai in Johor, the Kuching Wetlands National Park in Sarawak and the Lower Kinabatangan Segama Wetlands in Sabah. By designating these sites, the government is committed to ensure the maintenance of the ecological character of the sites. The last listing

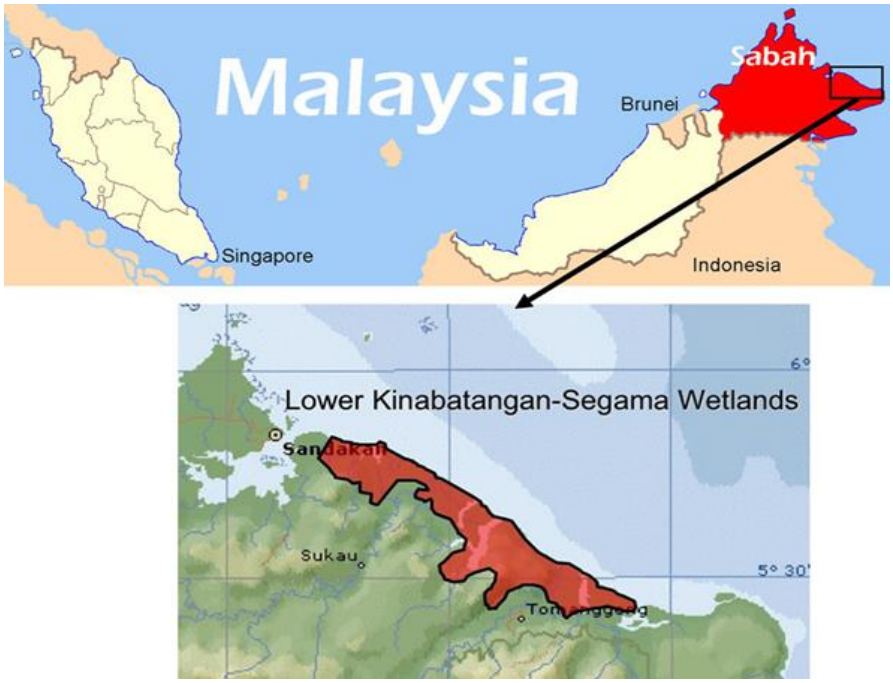
[15] Policy Strategies for the Conservation and the Sustainable use of the Highlands of Sabah and Sarawak, Economic Planning Unit
[16] An Overview of Wetlands In Malaysia, 2009

was done in 2008 by designating the Lower Kinabatangan-Segama Wetlands (LKSW) in Sabah as the 6th RAMSAR site in Malaysia.

RAMSAR site - LKSW comprises over 78,803 hectares of mangrove forests and peat swamp located on the east coast of Sabah.

LKSW comprises three forest reserves: Trusan Kinabatangan Forest Reserve (40,471 hectares), Kulamba Wildlife Reserve (20,682 ha), and Kuala Maruap and Kuala Segama Forest Reserve (17,650 hectares).

Map Source: Sabah Biodiversity Centre

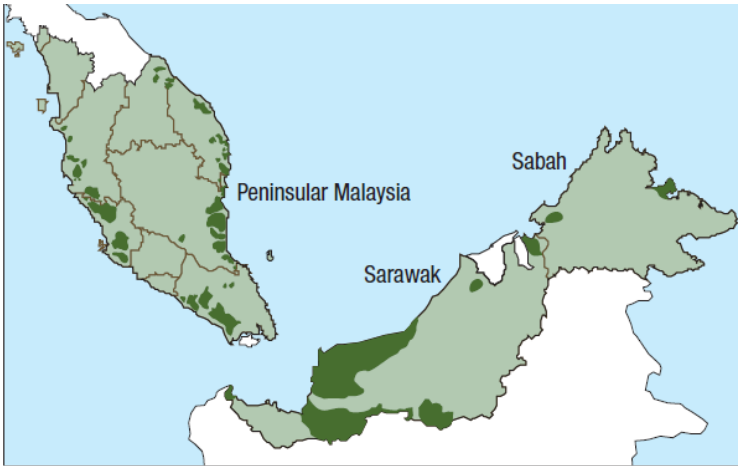


In relation to RAMSAR at the national level, Malaysia has published a National RAMSAR Information Toolkit as a resource document for wetlands managers and planners. It provides information that would assist decision-makers in listing aspects/criteria for other potential RAMSAR sites as well as draw attention to the many important wetland sites in Malaysia.

Peat swamp forests are water logged forests and still contributes a significant portion of forest cover in Malaysia. There is an estimated 1.54 million hectares still remaining. Majority of peat swamps are found in the State of Sarawak (estimated around 70%), less than 20% in Peninsular Malaysia and the remainder in Sabah.[18] Threats to peat swamp forest include land use change for agriculture and other developmental activities.

[18] National Coastal Resources and Marine Environment Profile

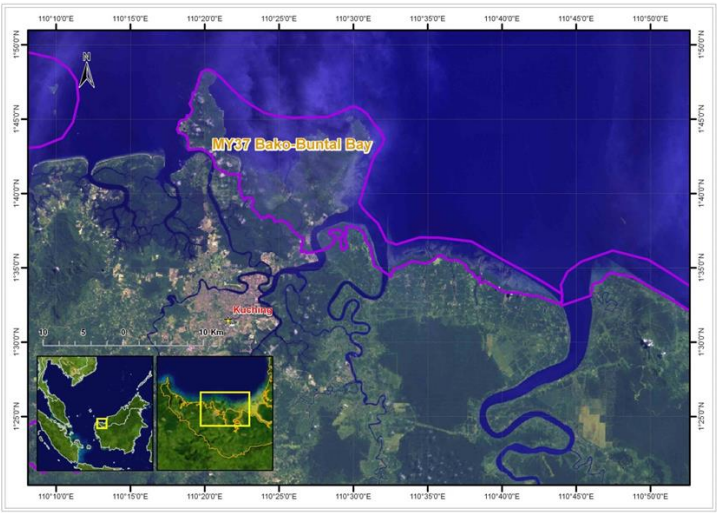
Map 2: Illustrative overview of peat swamp distribution in Malaysia



Source: Malaysia's Peat Swamp Forests - Conservation and Sustainable Use of Tropical Peat swamp Forest and associated wetlands ecosystems. Project implemented by FRIM and supported by UNDP and financed by GEF and DANCED

Malaysia continues to work with other countries and organizations in transboundary conservation efforts. Malaysia became a partner to the East Asian - Australasian Flyway Partnership (EAAFP) in November of 2012. Bako Buntal Bay, in Sarawak, was accepted as a flyway site in May 2013. Being the partner of EAAFP further signifies Malaysia's commitment to the RAMSAR Convention.

Map 3: The Bako Buntal Bay area in Sarawak



Bako Buntal Bay, Malaysia's first EAAFP site is an important habitat for migratory waterbirds. Thirty-two (32) species of shorebirds comprising an estimated 20,000-25,000 individuals winter in the bay and its immediate environs. Several globally threatened and near threatened species such as the Nordmann's Greenshank, Asian Dowitcher and Far Eastern Curlew make their stops here. The area supports more than 10% of the global population of the Chinese Egret while the numbers of Red Knot and Great Knot are among the highest for any site in Malaysia. These recordings make Bako Buntal Bay globally significant as an important site for waterbirds. This site has a huge potential for eco-tourism which can potentially generate alternative income sources for the local communities in this area while supporting conservation efforts.

2.1.4 Marine and Coastal Biodiversity

Marine and coastal biodiversity consist of coastal hill dipterocarp forests, mangrove forests, mud flats, coral reefs and sea grass areas.

Malaysia has a coastline of some 4,800 km, and sits on the geologically stable Sunda Shelf. About half the coastline is beaches and slightly less than half is fringed with mangrove forest. There is relatively little rocky coastline. Both the beach and mangrove ecosystems boast distinct, unique and spectacular biodiversity, and provide a broad range of ecological services ranging from tourism and recreation to providing critical habitat for reptilian, crustacean, mollusc and fish species. Environmentally Sensitive Areas (ESAs) on the coasts of Malaysia have been identified and mapped in the NPP. These ESAs include mangrove forests, marine parks, critical coastal erosion areas and turtle landing sites.

2.1.4.1 Coral Reefs

Image 2 : Coral Reefs

Source: Department of Marine Parks

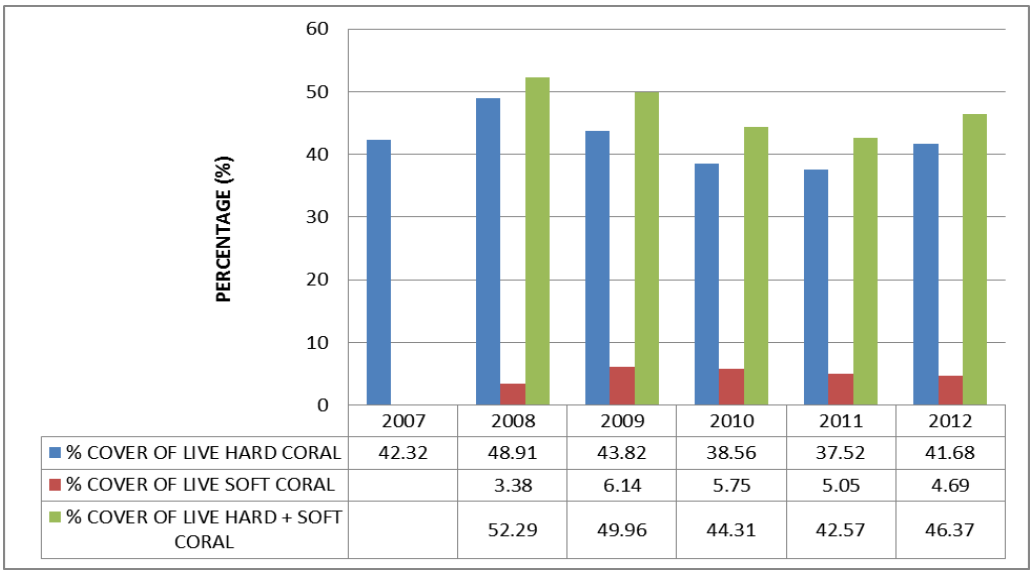
Coral reefs in Malaysia are estimated to cover close to 4,006 km^2. Coral reefs support not less than 700 species of fish that are dependent on coral reefs as a habitat. Coral reefs are valuable economic and ecological resources. They have important ecosystem functions that provide crucial goods and services to hundreds of millions of people, mostly in developing countries. They are the foundation of a significant proportion of the global tourism industry, and are a major source of biodiversity[19].

It is reported that USD 5.5 billion is generated from the coral reefs of the world annually.[20] Within Southeast Asia, the potential sustainable economic value of coral reefs is substantial, as is the potential economic loss if these resources are degraded. One estimate puts the value of coral reefs at US$115,740 per hectare per year. This places Malaysia's reefs at a value of US$45.31 billion per year. Malaysia is part of the "Coral Triangle", an area recognised by scientists to contain the world's richest marine biodiversity. Coral diversity is highest in East Malaysia, estimated at over 550 species while Peninsular Malaysia has over 480 species of coral. Coral reefs represent an economically important ecosystem and are the foundation of a significant percentage of the country's tourism industry. Economically, coral reef-related

[19] Department of Marine Park Malaysia
[20] Reaser *et al.* 2000

businesses in Malaysia are worth approximately US$635 million annually in food, fisheries, tourism and even pharmaceuticals.[21] Malaysian coral reefs have been categorised as fair based on the average live coral cover of 46.4% in 2012. This showed an improvement from the year 2011 of which the average live coral cover was only 42.6%. This indicates that the reefs are recovering from the mass bleaching event in 2010[22]. A further survey in 2013 saw a positive sign of steady recovery with 48.3 % live coral cover.[23]

Figure 1: Trends in live coral cover from the year 2007 – 2012



	2007	2008	2009	2010	2011	2012
% COVER OF LIVE HARD CORAL	42.32	48.91	43.82	38.56	37.52	41.68
% COVER OF LIVE SOFT CORAL		3.38	6.14	5.75	5.05	4.69
% COVER OF LIVE HARD + SOFT CORAL		52.29	49.96	44.31	42.57	46.37

Source: Annual Survey Reports, 2007-2012

There are many local threats to coral reefs in Malaysia which include destructive fishing, coastal development, pollution, sedimentation as well as physical impacts from tourism activities such as diving, snorkelling and boating.

Against the local threats above, mass coral reef bleaching has emerged over recent years as a global threat; which is difficult to manage at the local level and has potentially devastating effects. The first significant mass coral reef bleaching event reported in Malaysia was in 1998, as a result of which, an estimated 40% of corals in reefs around Peninsular Malaysia died. Reefs had barely recovered before the 2010 mass coral reef bleaching event occurred, which fortunately saw lower coral death rates ranges from 5% to 10%. This is due to effective management of local threats to reduce stress and allows for natural recovery.

Consequently, Malaysia has developed a Coral Reef Bleaching Response Plan, which aims to put in place a number of actions in response to coral bleaching related events. The key objectives of the plans are to:-

[21] Reef Check Malaysia
[22] Reef Check Malaysia. Status of Coral Reefs in Malaysia 2012
[23] Reef Check Malaysia. Status of Coral Reefs in Malaysia 2013

- Raise awareness among key stakeholders of the possible impacts of mass coral bleaching;
- Formulate guidelines for actions to respond to coral bleaching and establish a bleaching reporting/information system for public networking and information sharing; and
- Establish a coral bleaching committee/unit involving government, non-governmental agencies and universities that would encourage immediate and long term actions to reduce local stresses to coral reefs.

The Plan also contains 4 primary components that contribute towards the overall response mechanism which include:

- **Early Warning Systems**: In view of the increase in coral bleaching monitoring internationally, information is available from a variety of sources that serves as early warning of climate conditions that favour bleaching. This aids towards predicting bleaching events;

- **Response Triggers**: In view of the fact that bleaching occurrences are not uniform, the plan therefore, identifies a number of triggers that result in programmed actions. This provides flexibility in implementation, and allow for adaptive management in different scenarios;

- **Management Actions**: implementation of a variety of actions that would reduce or eliminate local threats to coral reefs and thereby enhancing the survivability of coral reefs to bleaching events; and

- **Communications**: a significant element of the plan involves communications with various stakeholders. The provision of timely, accurate information helps stakeholder groups understand these events and therefore increases the likelihood of cooperation with management authorities towards efforts to reduce the impacts of coral bleaching events.[24]

2.4.1.2 Mangroves

Peninsular Malaysia has a coastline of about 1,972 km that borders the South China Sea in the East, the Straits of Johor in the South, and Straits of Malacca in the West. About 72% of the coastline in West Peninsular Malaysia is made up of mud coasts, while the rest is sand coasts interspersed with capes, promontories and headlands of granite and sandstone. Most of the mangrove areas are found fringing this coastline. Mangroves in Peninsular Malaysia are found largely sheltered along the west coast that borders the Straits of Malacca. Key near-shore islands such as the Pulau Klang in Selangor and

Image 3 : Mangrove forest
Source: Forestry Department Peninsular Malaysia

[24] Coral Bleaching Response Plan 2012-2013

Pulau Kukup in Johor are also predominantly colonized by mangroves.[25] Sabah and Sarawak contain almost 82% of the nation's mangroves. In Sabah mangrove forests are found largely on the east coast facing the Sulu Sulawesi Seas, and in Sarawak, these forests are located at the river mouths of Rajang and the Trusan- Sundar.[26] In Malaysia, there are about 38 species of true mangroves and generally, mangrove plant species diversity is comparable with the global diversity; as at least 70 species from 28 families have been recorded.[27]

Within the PRFs in Malaysia, the country recorded mangrove areas at 544,032 hectares in 2012; showing an upward trend from the last reporting period where in 2009, mangroves areas was recorded at 539,142 hectares. Peninsular Malaysia, in 2012, recorded total mangrove areas of 98,848 hectares. The State of Sabah has the largest area of mangrove forest in the country and within PRFs, the figure in 2012 stands at 333,019 hectares. Meanwhile, the total mangrove forest area in Sarawak in 2012 is 112,165 hectares.[28]

Image 4: Replanting of mangrove
Source: Forestry Department Peninsular Malaysia

In 2005, Malaysia launched the 'Tree Planting Programme with Mangrove and Other Suitable Species along the National Coastlines' as part of mangrove forest conservation and environmental protection activities. The implementation of this programme is in line with the National Forestry Policy 1978 (NFP) and the National Physical Plan I (NPP-1).

During the nine-year period of its' implementation from 2005 to 2013, Malaysia has succeeded in planting 6.2 million seedlings of mangrove trees and other suitable tree species encompassing 2,500 hectares of coastal area throughout the country. The success of this planting programme was achieved through an integrated approach and through the involvement of various parties including the Forestry Department Peninsular Malaysia (FDPM), the Forest Department Sarawak, the Sabah Forestry Department, Non-Governmental Organizations (NGOs) and local communities.

2.1.5 Agricultural Biodiversity

Agricultural biodiversity (agro-biodiversity) has a key role to play in relation to food security, eradication of poverty and sustainable ecosystem functioning.

Agriculture is the third engine of growth in Malaysia which contributed US$16.55 billion or 7.7% of Malaysia's GDP in 2011 which increased to 10.1% in 2012.[29] Malaysia's agriculture sector

[25] Forestry Department Peninsular Malaysia
[26] Status of Mangroves in Peninsular Malaysia, Chapter 2, H Tariq Mubarak and M Azian
[27] Forestry Department Peninsular Malaysia
[28] Compendium of Environmental Statistics Malaysia, 2013.

largely consists of oil palm, rubber, rice fields, cocoa, fruit orchards, industrial crops (tuberous crops, kenaf, and medicinal plants), vegetable farms, livestock rearing and aquaculture farms.[30]

Sustainable utilization of agro-biodiversity resources is a key component within the agriculture sector in Malaysia. Agencies such as the Malaysian Agricultural Research and Development Institute (MARDI), the Department of Agriculture (DOA) and the Department of Veterinary Services (DVS) come under the purview of the Ministry of Agriculture and Agrobased Industry (MOA). Collectively these implementing agencies works towards ensuring that genetic resources including plants, microbes, farm animals and arthropods are continuously conserved and sustainably used. These agro-biodiversity resources are essential for future breeding purposes, improving plant varieties or animal breeds; to develop traits that are resistant to pests and diseases; for utilization as biofuel, bio-pesticides and in food product development.

Plant genetic resources including rice, fruits, medicinal plants, biopesticidal plants, ornamental plants, underutilized fruits etc. are conserved in Malaysia both via *in-situ* and *ex-situ* means and mainly in germplasms throughout Malaysia. For example, rice germplasms collection conserved in seed gene banks are as follows; in MARDI, a total of 12,091 rice accessions is found, the Department of Agriculture in Sabah has 1,000 accessions and the Agricultural Research Centre in Sarawak contain 3,938 rice accessions.[31] There has been a substantial increase in these rice accessions since the last reporting period.

In relation to animal genetic resources, conservation of these resources comes within the purview of the DVS and MARDI for the improvement of new varieties. Malaysia has a National Animal Embryo Centre (NAEC) which conducts farm animal research and development (R&D) in collaboration with national and international agencies.

With regard to insect genetic resources, there are more than 30,000 preserved specimens conserved at the Insect Museum at MARDI, DOA and local universities for R&D as well as education and awareness purposes. With regard to microbial and fungal genetic resources, a number of research institutes and universities have registered their respective microbial collections with the World Data Centre for Microorganisms (WDCM). These collections will be continuously increased and registered for future R&D and education purposes.

2.2 SECURING FOREST BIODIVERSITY – status and trends

Malaysia's approach to biodiversity conservation and management is very much rooted in the protected area approach whereby areas identified as significant for biodiversity and its ecosystem values are protected by virtue of legal gazette and accorded with varying levels and status of protection. In relation to forest biodiversity, these take the form of Permanent

[29] Economic Planning Unit, 2012
[30] Third National Agriculture Policy of Malaysia
[31] Adapted from Mohd Shukor *et al* (2011). Conservation and Utilization of PGRFA and - Mohd Shukor *et al* (2012). Agrobiodiversity in Malaysia II

Reserved Forest (PRFs), national parks as well as wildlife sanctuaries. Trends in relation to PRFs in Malaysia and other categories of land use is presented in **Table 2**.

Table 2: Total forested area in Malaysia for the year 2010 - 2012

MALAYSIA FORESTED AREAS	AREA (1000 HECTARES)		
	2010	2011	2012
(a) Permanent Reserved Forest (PRF)			
▪ Peninsular Malaysia	4,920	4,912	4,894
▪ Sabah	3,607	3,607	3,609
▪ Sarawak*	6,000	6,000	6,000
Total PRF	**14,526**	**14,519**	**14,503**
(b) State land Forest	4,718	4,630	4,656
(c) National Parks and Wildlife & Bird Sanctuary	1,859	1,859	1,859
Total Forested Area (a+b+c)	**21,104**	**21,009**	**21,019**

* Sarawak has committed to set aside this land area under this category.

2.2.1 Peninsular Malaysia

The Forestry Department Peninsular Malaysia (FDPM) is entrusted with the role of managing forest and amongst its objectives is to ensure the sustainable utilization of forests and its produce. The National Forestry Policy 1978, also provide FDPM direction in relation to implementing conservation programmes towards achieving Sustainable Forest Management (SFM) initiatives. To ensure effective implementation of the National Forestry Policy of 1978, the National Forestry Act of 1984 was enacted and is enforced by the respective State Authorities in Peninsular Malaysia as matters relating to forests and land fall under the jurisdiction of each State in Peninsular Malaysia.

In order to secure various forest biodiversity, Peninsular Malaysia, through efforts initiated by respective Forestry Departments and utilizing the National Forestry Act 1984 as the main legal mechanism, constitute PRF which are classified into production and protection forests. Protection forests are essentially forests accorded protection in recognition of the various environmental services that they provide. These protection forests are further classified into what is known as functional classes such as soil protection forest, soil reclamation forest, flood control forest, water catchment forests, forest sanctuary for wildlife, amenity forest, virgin jungle reserves, education forest and research forests.[32]

In efforts to further enhance ecosystem protection, FDPM has gazetted a total of 750,923 hectares as water catchment areas. Another 90,685 hectares of water catchment areas await formal gazzetment. In addition, the Water Catchment Forest Rules were developed and approved

[32] Functional classes as provided for under Section 10 of the National Forestry Act 1984

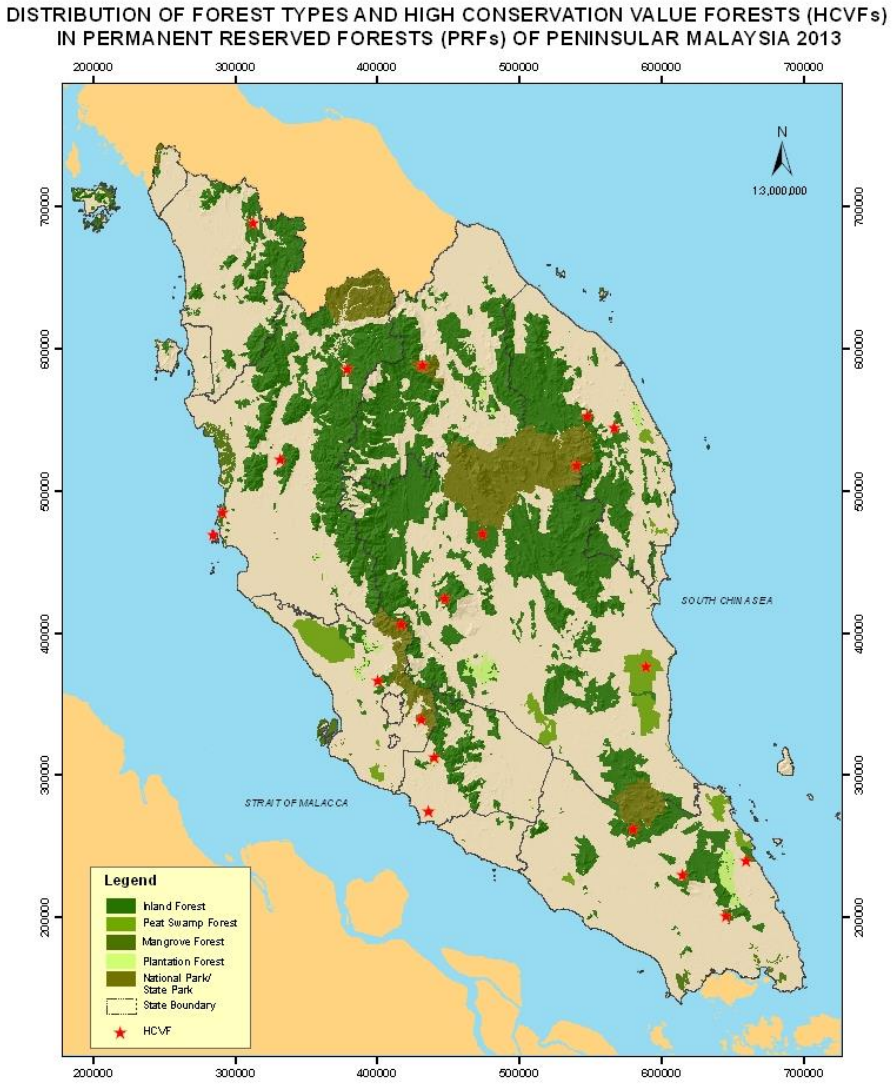
by the National Forestry Council of Malaysia[33] in 2009. The Rules regulate various aspects such as planning, management, development, protection, preservation, conservation and control of water catchment forests.

High Conversation Value Forest (HCVF) as defined by the Forest Stewardship Council (FSC) are forests of outstanding and critical importance due to their high environmental, socio-economic, biodiversity or landscape values. The HCVF concept has received growing attention as a tool for promoting biodiversity conservation and complements the implementation of Sustainable Forest Management (SFM) practices. The identification of HCVF has profound consequences on forest management options and is of critical importance in the formulation of forest management plans. In the Malaysian context, sound management and protection of HCVF is an important criterion in the assessment of PRFs in relation to Sustainable Forest Management compliance standards.

To date, a total of 22 HCVF had been established within PRFs in Peninsular Malaysia for the *in-situ* conservation of various unique flora species, water catchment areas, seed production areas, pristine virgin jungle reserves, lowland dipterocarp forest and customary burial ground covering a region of 2,649.40 hectares.

[33] The National Forestry Council is now merged into the National Land Council of Malaysia

Map 4: Distribution of the various forest types, water catchment areas and location of HCVFs within PRFs as of 2012 throughout Peninsular Malaysia.



Source: Forestry Department Peninsular Malaysia

2.2.2 Sabah

As the norm for protection of forests and biodiversity in general, the Sabah State Government also utilizes the protected area approach and thereby classifies its forests under various categories of protection, primarily achieved through State legislation known as the Forest Enactment of 1968. Under the enactment, there are seven classes of forest reserves whereby four such classes are regarded as protected areas. The first of these are the Class I Protection Forests, the main function of which is to safeguard water supplies, soil fertility and environmental quality. Class V are mangrove forests. Class VI comprises of Virgin Jungle Reserves which are relatively small areas intended to provide undisturbed forest for research

purposes and the preservation of gene pools. The fourth conservation class is Class VII i.e. Wildlife Reserves, which are meant for the protection of wildlife.

Table 3: Trends for Permanent Reserved Forests for 2009, 2010 and 2012 in Sabah

CLASS	TYPE OF FOREST RESERVE	APPROXIMATE AREA (HA)		
		2009	2010	2012
Class I	Protection Forest	364,794.17	466,759.95	773,705.74
Class II	Commercial Forest	2,665,886.00	2,550,022.00	2,241,501.00
Class III	Domestic Forest	7,355.00	6,919.00	6,919.00
Class IV	Amenity Forest	21,283.77	16,358.77	15,725.44
Class V	Mangrove Forest	320,521.56	326,487.12	331, 620.12
Class VI	Virgin Jungle Forest	92,400.70	103, 037.73	102, 043.24
Class VII	Wildlife Reserves	132, 653.00	137, 065.00	137, 735.00
	Grand Total	**3,604, 894.20**	**3,606,646.57**	**3,609,249.55**

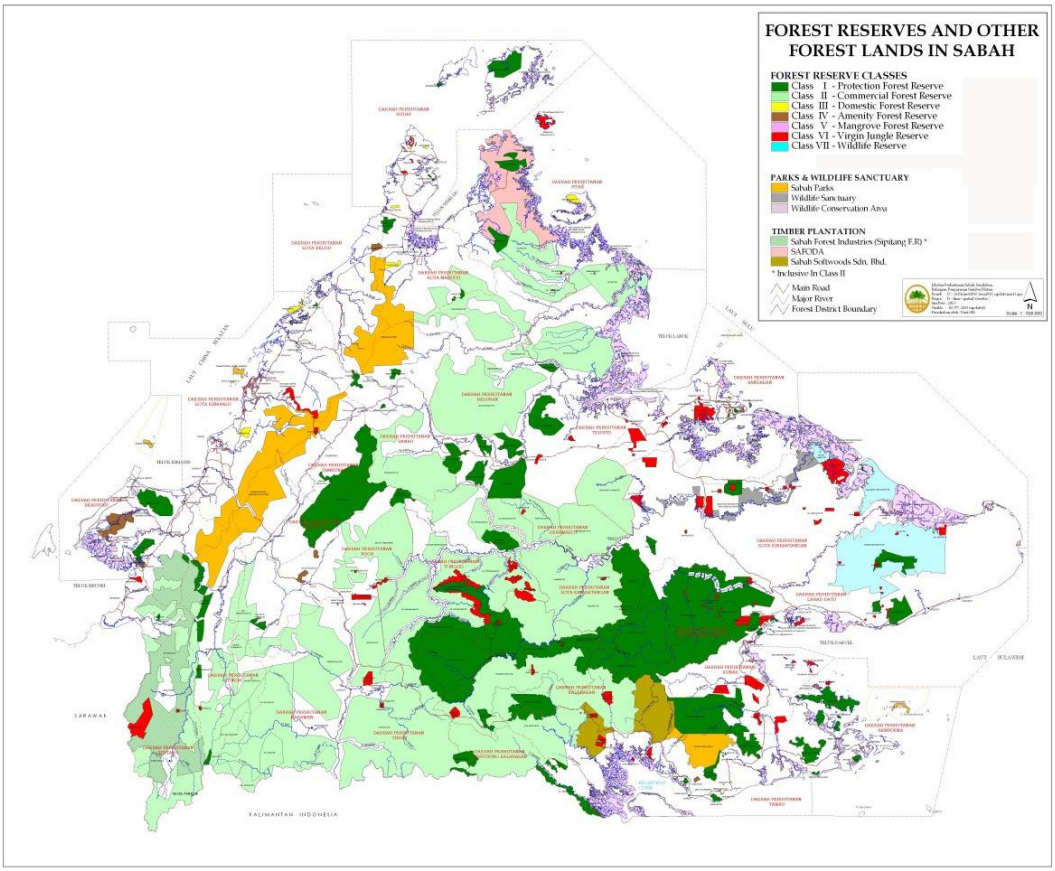
Source: Fact Sheet of Forest Reserves in Sabah, 2012. Sabah Forestry Department

Sabah's land area totals 7,362,000 hectares which is inclusive of her islands. As the table above indicates, about 3,609,249 hectares, or 49% are gazzeted as Permanent Reserved Forests. This could be further sub-categorized as 227 forest reserves of various types and ecosystems. As of 2012, there is an increment of forest reserves area amounting to 0.07% or 2,602 hectares compared to 2010 figures. There is substantial increase in Class I level protection due to the reclassification of commercial forests into protected forests.[35]

In addition to Permanent Reserved Forests, Sabah also contains areas outside of PRFs which are gazzeted as parks, wildlife sanctuaries and wildlife conservation areas. These collectively represent about 0.27 million hectares. Together, they represent about 3.88 million hectares of protected areas and account for 53% of Sabah's land mass. If all the forested areas are to be taken into account (including state land forests and alienated forests outside of PRFs) about 60% of Sabah is under some form of forest cover.

[35] Fact Sheet of Forest Reserves in Sabah 2012- Sabah Forestry Department

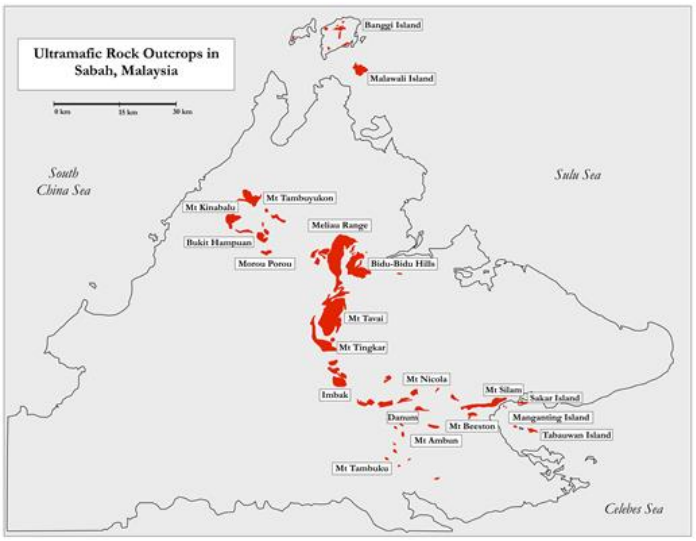
Map 5: Forest reserves in Sabah as of 2012



2.2.2.1 Ultramafic forests – a unique ecosystem in Sabah

Sabah is also known to have a unique ecosystem known as ultramafic forests. Ultramafic (often called 'serpentine') rocks and derived soils are igneous and meta-igneous rocks with low silica content and composed high of mafic minerals (high magnesium, iron and heavy metal; especially nickel).

Map 6: Localities of Ultramafic outcrops in Sabah based on a geological survey conducted in 1965



Source: Sabah Forestry Department.

With coverage of about 3,500 km^2, Sabah has the largest surface exposure of ultramafic in Malaysia. The most significant ultramafic sites in Sabah are Mt. Tambuyukon, Mt. Silam, Bidu-Bidu hills, Mt. Tawai, Mt. Tingkar, Morou Porou, Hampuan and Kulung Hill, Pig Hill and Marai Parai. The total ultramafic areas that are within protected areas (falling under the jurisdiction of the Sabah Forestry Department and Sabah Parks) in Sabah is 102, 167.45 hectares or 51.5% of the total ultramafic areas in Sabah. [36]

The importance of ultramafic outcrops is that they are known to have stimulated plant speciation and supports high levels of endemism. Over 900 plant species have been described on ultramafic around Mt. Kinabalu alone of which a large percentage is endemic. Some endemic species are pitcher plants (*Nepenthes rajah, N. burbidgea and N. villosa*); various species of orchids (*Paphiopedilum hookerae var. volonteanum rothchildianum, P. dayanum, Renanthera bella,* etc.); trees species *(Borneodendron aenigmaticum, Dillenia luzonensis Tristaniopsis elliptica, Leptospermum javanicum, L. recurvum Dacrydium gibbsiae, Gymnostoma sumatranum, Centhostoma terminale,* etc.) However, full biodiversity and ecology remain largely unknown due to a lack of focused research on ultramafic forests.[37]

***Image 5: Rhododendron sugaui* - a leafy plant found only in the ultramafic area of Mt. Tawai at an altitude of 1,250m. Source: Sabah Forestry Department, Picture –Joel Dawat.**

2.2.3 Sarawak

The Forest Department Sarawak, being a technical and scientific department pursues forest management, forest protection, the efficient and effective utilization of the forest resources and the preservation and conservation of flora and fauna in the state of Sarawak. The role of the department in relation to conservation of biodiversity includes the following:-

- To conserve natural the forests of flora and fauna of the State;
- To establish and maintain the Totally Protected Areas (TPAs) which consist of national parks, nature reserves, wildlife sanctuaries, and Permanent Forest Estates (PFEs);
- To conduct management and research on nature conservation and wildlife; and
- To issue permits and licenses in relation to wildlife.

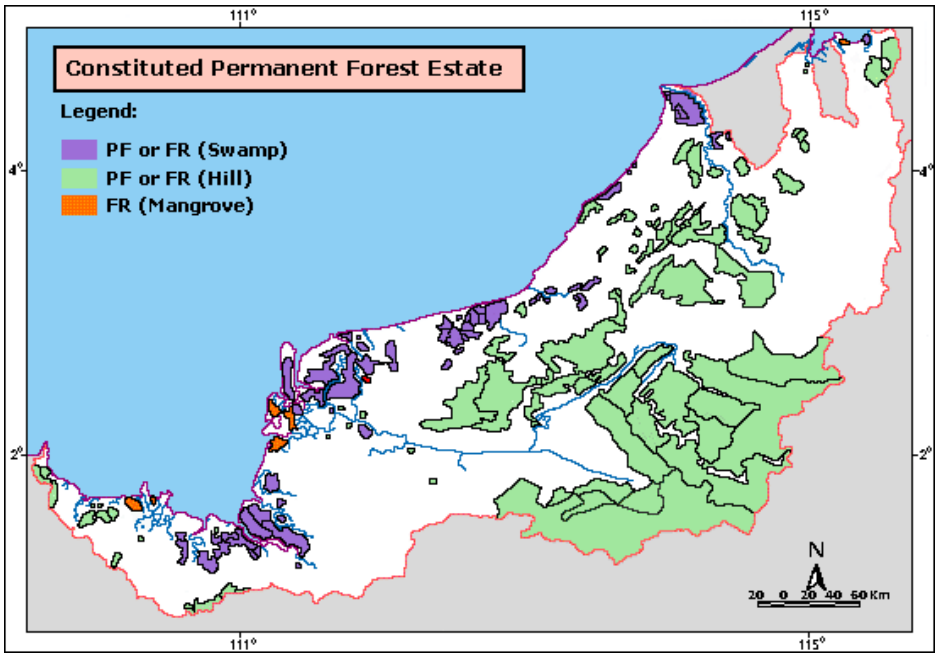
[36] Towards the Implementation of Plant Conservation Strategy for Rare and Endemic Species in Sabah: A Heart of Borneo Initiative J.B Sugau, J.T Pereira, S,Suzana & R,Nilus, Forest Research Centre, Sabah Forestry Department

[37] Sabah Parks

Three main types of forests are predominant within the state. These are Hill Mixed Dipterocarp Forest, Peat Swamp Forests and Mangrove Forests.

Sarawak is the largest State in Malaysia occupying a land mass covering 12.4 million hectares. Forest land in Sarawak is classified as the Permanent Forest Estate (which include Forest Reserves, Protected Forests and Communal Forests) and Totally Protected Areas (National Parks, Wildlife Sanctuaries and Nature Reserves) and State Land Forests.

Map 7: Distribution of Permanent Forest Estates within the State of Sarawak.



Source: Forest Department Sarawak

2.3 Protected Areas in Malaysia- Terrestrial and Marine Protected Area Updates

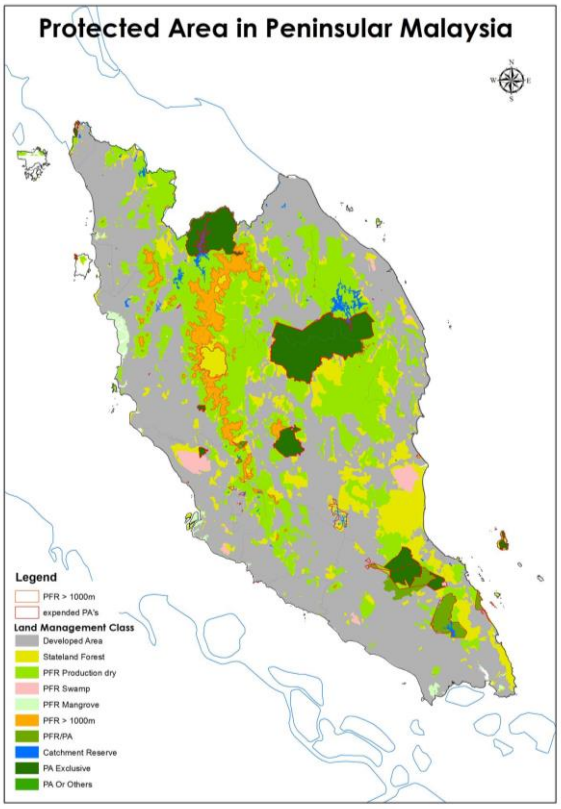
2.3.1 Peninsular Malaysia Terrestrial Protected Areas

In order to safeguard the globally and nationally significant terrestrial biodiversity, Malaysia has established networks of protected areas (PAs). In Peninsular Malaysia, there are at least four (4) major PA networks covering approximately an area of about 3 million hectares, managed by different government agencies such as the Department of Wildlife and National Parks, the Johor National Parks Corporation, the Perak State Parks Corporation and State Forestry Departments. PAs under different networks are governed by different laws with varying degrees of protection status, and gazettal and de-gazettal procedures.

What is crucial to note is that Malaysia does not have a uniform national PA system operating in the country. The country does have a long history of constituting PAs dating back to 1903 when the first PA was established in Chior Wildlife Reserve in the State of Perak. Ever since, the number of protected areas has increased to sizeable portions. At the Federal Government level,

two departments within the Ministry of Natural Resources and Environment (NRE) have the mandate to administer different types of terrestrial PAs with biodiversity conservation being the ultimate management objective. These are the Department of Wildlife and National Parks (DWNP) and the FDPM. The terrestrial PAs in Peninsular Malaysia can be divided into two broad categories i.e. Wildlife Protected Areas and Protection Forests under PRF.

Map 8: Location of terrestrial protected areas under various government agency jurisdictions in Peninsular Malaysia.



Source - Department of Wildlife and National Parks

Wildlife PAs are established primarily for wildlife protection and biodiversity conservation. These PAs tend to be established under various categories which include National Parks, State Parks, Wildlife Reserves, Wildlife Sanctuaries and Nature Reserves. These areas are mostly established under legislation pertaining to parks creation, land and wildlife. These include the National Parks Act 1980, the Wildlife Conservation Act 2010, the National Land Code 1965 at the Federal level, and state level enactments such as the National Parks (Johor) Corporation Enactment 1989 and Perak State Parks Corporation Enactment 2001. The Wildlife PAs include 35 PAs managed by the DWNP, 6 PAs managed by the two state parks corporations i.e. Johor National Parks Corporation (JNPC) and the Perak State Parks Corporation (PSPC).Overall, under these various categories of protected areas (i.e. protection forests within PRFs, wildlife areas/sanctuaries and State Parks) rounds up to approximately 13% [38] of the total land area of Peninsular Malaysia.

[38] This is a provisional figure based on an ongoing study conducted by NRE which is yet to be published.

The two States Sabah and Sarawak in eastern Malaysia operate/manage Protected Areas through various state legislation.

2.3.2 Sabah Protected Areas

The setting aside of protected areas for conservation purposes have been long established in Sabah. Currently, multiple categories of PAs form an important standpoint for biodiversity efforts in the State. Apart from PRFs which are protected under the Forest Enactment of 1968, other protected areas are constituted under separate legislation. Under the Wildlife Conservation Enactment 1997, there are provisions for the declaration of three types of protected areas. These include the setting aside of Conservation Areas, Wildlife Sanctuaries and Wildlife Hunting Areas.

As of 2012, Sabah has established 26,243.49 hectares for wildlife sanctuaries and 2,854 hectares as Wildlife Conservation Areas.[39] These include the Tabin Wildlife Reserve, the Kulamba Wildlife Reserve and Lower Kinabatangan Wildlife Sanctuary.

Terrestrial PAs are also formed by virtue of constituting various parks within the state coming under the management authority of the Sabah Parks. The Sabah Parks is a statutory body established under the National Parks Ordinance of 1962 and placed under the purview of the Ministry of Tourism, Culture and Environment of the State. The department manages these Park systems with the objective to preserve for perpetuity areas which contain significant geographical, geological, biological or historical features as a National Heritage for the benefit, education and enjoyment of the people.

Presently there are 3 parks gazetted under the Parks Enactment of 1984. These include Mt. Kinabalu, Crocker Range and Tawau Hills. The Crocker Range Park covers an area of 139,919 hectares and was established in 1984 and is the largest terrestrial park in the State and in the process of being declared as a UNESCO Man and Biosphere (MAB) Reserve.

Table 4: Various Terrestrial Parks in Sabah and the total size of each Park.

No	Parks	Year Gazzetted	Area (ha)
1	Kinabalu Park	1964	75, 370
2	Tawau Hills Park	1979	27,972
3	Crocker Range Park	1984	139,919
		Total	**243, 261**

Source: Sabah Parks

[39] Sabah Annual Forestry Report 2012

2.3.3 Sarawak Protected Areas

All the 35 Protected Areas (or Totally Protected Areas as they are known in the State) in Sarawak are placed under the jurisdiction of a single authority, i.e. the Forest Department of Sarawak with management assistance from the Sarawak Forestry Corporation, a statutory body.

Totally Protected Areas (TPAs) in the State refer to forest lands designated and established under the provisions of the National Parks Ordinance 1998 and the Wildlife Protection Ordinance 1998.

In 2012, Sarawak registered her Totally Protected Areas at 774,799.70 hectares which include the following categories of TPAs; twenty five (25) National Parks, six (6) Nature Reserves and four (4) Wildlife Sanctuaries.

Table 5: Summary of TPAs statistics in Sarawak as of 2012[40]

No.	Totally Protected Areas (TPAs)	Land Area (Ha)	Water Bodies (Ha)	Total Area (Ha)
1.	**National Parks**	375,056.0	206,344.0	581,400.0
2.	**Nature Reserves**	1,220.3	0.0	1,164.3
3.	**Wildlife Sanctuary**	192,235.4	0.0	192,235.4
	TOTAL	**568.455.7**	**206,344.0**	**774.799.7**

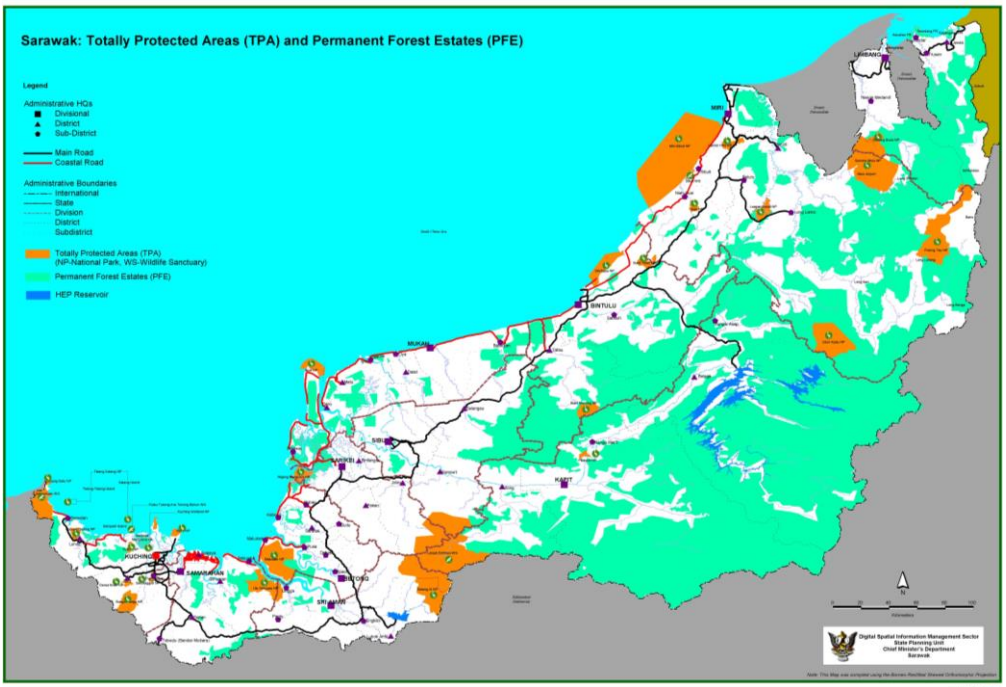
Source: Forest Department Sarawak

The role provided by various TPAs in Sarawak include[41]:-

- The conservation and protection of wildlife and their habitat;
- The preservation of specific natural geological or physiographical features, landscape and sites of special interest for archaeological, recreational, educational or conservation purposes on land and in areas beneath the territorial waters of the State;
- To facilitate the study and research on the biodiversity within the State;
- The preservation and protection of the natural scenic beauty, and the historical sites and historical monuments on land and in the territorial waters of the State; and
- To afford opportunities for public appreciation, enjoyment, interest and education of the natural scenic beauty, wild life habitat, flora and fauna, geological and physiographical features and landscape, historical sites and historical monuments of the State.

[40] Forest Department of Sarawak Annual Report 2012
[41] Forest Department of Sarawak

Map 9: Totally Protected Areas in Sarawak (highlighted in orange)



Source: Forest Department Sarawak

2.3.4 Latest efforts on PAs

With the adoption of the CBD Programme of Work for Protected Areas in 2005, NRE is taking the lead to provide coordination for protected areas matters in relation to the CBD Programme of Work. Such a coordinating role is crucial in light of the fact that there is no uniform PA system in Malaysia. The Ministry has as a first step, embarked on the exercise to produce a Master List for Protected Areas for the country. It will be the first attempt to compile an official national list for all categories of terrestrial and marine protected areas in Malaysia. The proposed/provisional Master List will provide crucial information on the size, location and management objectives of protected areas, the date such a PA was established, the management authority as well as the habitat types that are represented within the individual protected areas.

Efforts towards fortifying PA management include the recent 'Enhancing Effectiveness and Financial Sustainability of Protected Areas in Malaysia project (PA Financing Project) which is executed by NRE and implemented by DWNP. The project is funded by the Global Environment Facility (GEF) and supported by the United Nations Development Programme (UNDP) Malaysia. The main objective of the project (which commenced in 2012 and expected to end in 2019) is to establish a performance-based financing structure to support effective PA systems management. The project aims to operate at three institutional levels i.e.

- At the Federal level – whereby the project would assist towards establishing: i) a protected area (PA) National Framework with the main aim of strengthening the institutional capacities of the relevant federal agencies involved in PA management; and ii)

a sustainable financing system to ensure an improved and effective PA management throughout Malaysia.

- At the State/regional level – the project will work with the States of Perak, Johor, Pahang, Terengganu and Kelantan, and three PA agencies namely the DWNP, Johor National Parks Corporation and Perak State Parks Corporation, to provide better support for their PA networks through improved legislation and longer term PA strategies including financing strategies or plans. Additionally the project will work towards the creation of a National PA Centre of Excellence that can support all PAs with training and advisory services in the long term.

- At Specific Site level -The project focuses on the Taman Negara National Park, the Royal Belum State Park and the Endau-Rompin National Park in relation to building capacity for more effective site/park level management. Facets of the project include the development and the implementation of PA management plans, PA business plans, as well as strengthening individual and organisational capacities.

2.4 MARINE PROTECTED AREAS – status and updates

Malaysian waters cover an area of 453,186 km^2. Out of this area, approximately 1.4% is designated as marine protected areas (MPAs) by various pieces of legislation. Marine Protected Areas in Malaysia generally are composed of Marine Parks and Fisheries Prohibited Areas. The history of the establishment of MPAs in Malaysia dates back to the 1970s.

Table 6: Key milestones achieved by Malaysia in relation to the establishment and management of MPAs in Malaysia.

1970s	1980s	1990s	2000s	2010 to present
Establishment of three (3) MPAs in Sabah waters which consist of 11 islands under the management of the Sabah Parks.	Establishment of 22 islands in States of Kedah, Terengganu, Pahang, Johor and Sarawak as Fisheries Prohibited Areas under the management of Department of Fisheries Malaysia.	Gazette and re-gazette of 40 Fisheries Prohibited Areas islands in States of Kedah, Terengganu, Pahang, Johor and Federal Territories of Labuan as Marine Parks under the management of the Department of Fisheries Malaysia. Establishment of two (2) MPAs in Sarawak under the management of Forest Department of Sarawak	Establishment of three (3) MPAs in Sabah waters which consist of 12 islands under the management of Sabah Parks and the Sabah Wildlife Department. Establishment of two (2) MPAs in Sarawak under the management of Forest Department of Sarawak Establishment of two	Formulation of Management Plans and Zoning Plans for Marine Parks. Department of Marine Park Malaysia forges closer collaborations with local communities by introducing Alternative Livelihood Programmes, and the formation of Community Consultative Committee.

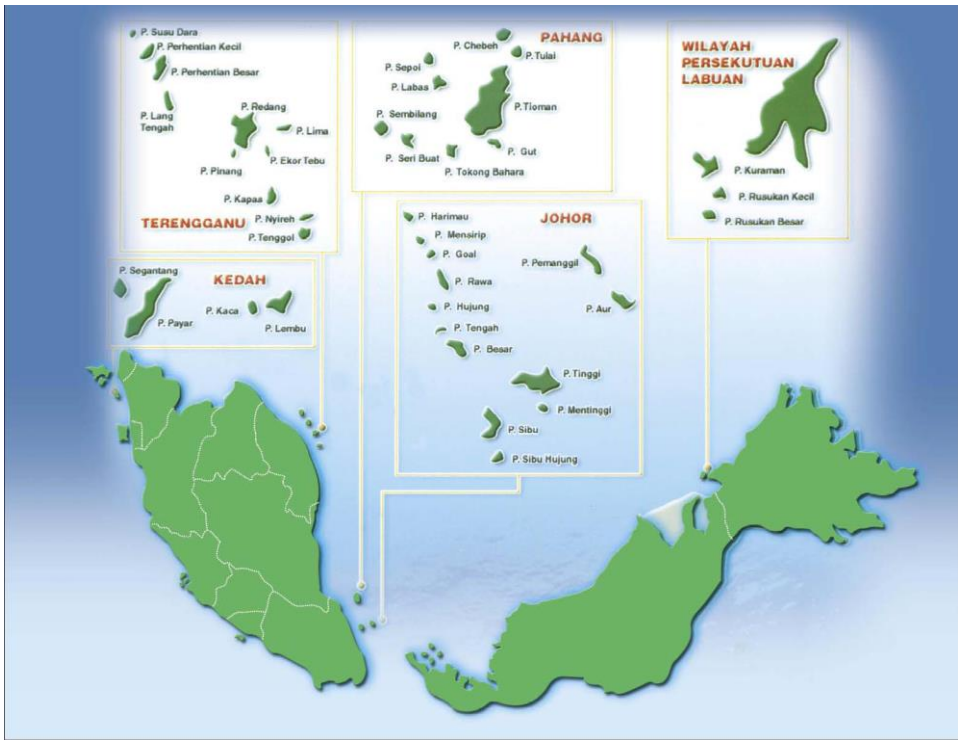
1970s	1980s	1990s	2000s	2010 to present
			Marine Parks in Terengganu waters. Establishment of Department of Marine Park Peninsular Malaysia under Ministry of Natural Resources and Environment to manage 42 Marine Parks in Malaysia.	Department of Marine Park Malaysia forges closer collaborations with NGO's and local universities in research and monitoring.

Source: Department of Marine Park Malaysia

Marine parks are established to protect and conserve various marine habitat and aquatic marine life. In Peninsular Malaysia, marine parks are created by way of gazzetment under the Fisheries Act of 1985. Marine Parks are sea areas zoned for a distance of two (2) nautical miles from the lowest sea level, except in Kapas Island in Terengganu, Kuraman Island, Rusukan Besar Island and Rusukan Kecil Island in Labuan. These aforesaid areas are zoned for a distance of one (1) nautical mile from the lowest sea level. To date, there are 42 marine protected areas established in Peninsular and Federal Territory of Labuan, under the purview of Department of Marine Park Malaysia.

Under a project co-funded by the Government of Malaysia and GEF and supported by UNDP that aims to conserve biodiversity; through enhanced marine park management and sustainable island development; three (3) site specific management plans have been formulated.

Map 10: Location of Marine Parks Peninsular Malaysia and the Federal Territory of Labuan



Source: Department of Marine Park Malaysia

Table 7: Total number of marine parks in Peninsular Malaysia and The Federal Territory of Labuan

No.	State	Number (Islands)	Area (ha)
1	Kedah	4	18,813
2	Terengganu	13	69,759
3	Pahang	9	67,661
4	Johor	13	76,565
5	Labuan	3	15,815
	TOTAL	**42**	**248,613**

Source: Department of Marine Park Malaysia

Apart from the need to preserve ecological systems within marine areas it is also acknowledged that the rich biodiversity, natural resources, ecosystem functions and beauty of these areas bring socio economic benefits to the country. In particular, the country's marine parks contribute considerable revenue to the country through tourism activities. Average number of tourists visiting these MPAs (in Peninsular Malaysia) is around half a million tourists per year. The tourism sector in the Pulau Redang Marine Park was estimated to be worth US$3.16 million in 2003. The Total Economic Value (TEV) of the Pulau Payar Marine Park in Kedah is estimated to be

US$54.38 million according to a study conducted in 2011. The estimated Total Economic Value of Labuan Marine Park in 2012 was US$12.38 million.

In Sabah, marine areas are protected via the Parks Enactment, 1984 with the latest proposed Tun Mustapha Marine Park underway for legal protection. The first MPA in Sabah was the Tunku Abdul Rahman Park which was established in 1974. The marine parks in Sabah are established with the main aim being for marine biodiversity conservation but there are parks established for very specific purposes such as the Pulau Tiga Park which contains unique island ecosystems such as mud volcanoes and also is the nesting habitat for sea snakes[42].

Table 8: Number of Marine Parks in Sabah already established and the proposed park in the pipeline.

No	Marine Parks	Year Gazzetted	Area (ha)
1	Tunku Abdul Rahman	1974	4,929
2	Turtle Island Park	1977	1,140
3	Pulau Tiga Park	1978	15,864
4	Tun Sakaran Marine Park	2004	35,000
5	Sipadan Park	2009	16,873.5*
6	Proposed Tun Mustapha Park	Expected 2015	1, 028,000
	TOTAL		**1,102,406.5**

Source: Sabah Parks

***** *For Sipadan Park, of which 13.5 hectares has been gazetted and the remaining areas await official gazettal.*

The establishment of the Tun Mustapha Marine Park in Sabah will represent a major contribution to Malaysia's MPA target and a boost to marine conservation efforts. The proposed park is located at the Kudat Banggi Priority Conservation Area (PCA) in the northern region of Sabah (as indicated in the map below), was proposed as a multi-use park by the State Government in 2003.

The objectives of establishing the park are:-

- To conserve marine biodiversity in mangrove forests, coral reefs and coastal waters;
- To enable sustainable development of traditional and commercial fisheries, and aquaculture, and
- To alleviate poverty of coastal villagers in the area.

The Sabah State Government is in the process of preparing the Integrated Management Plan of the proposed Tun Mustapha Marine Park, including the spatial conservation zoning plans. The preparation of the plan is in the final stage and the gazzetment of the area is expected to be

[42] National Coastal Resources and Marine Environment Profile- Ministry of Science Technology and Innovation Malaysia

achieved by 2015. The proposed park encompasses around 50 islands including Banggi Island which is the largest island in Malaysia.

The proposed park will encompass around 1,028,000 hectares. Once gazetted, the Integrated Management Plan will be implemented with the involvement of the various government departments and agencies, including other relevant stakeholders, with Sabah Parks as the Lead Agency. With this addition, Malaysia is set to achieve almost 3% of Marine Protected Areas overall.

Map 11: Various Marine Parks in the State of Sabah including the proposed Tun Mustapha Marine Park

Source: Sabah Parks

In Sarawak, two State level legislation are used for the establishment and management of MPAs namely the National Parks and Nature Reserves Ordinance 1998 and the Wildlife Protection Ordinance 1998.

A number of marine protected areas have been gazzetted under the National Park and Nature Reserves Ordinance of 1998. These include the Pulau Talang Satang National Park, the Tanjung Datu National Park and the Miri- Sibuti Marine Park. Areas declared under this Ordinance as MPA total 207,723 hectares or (20.7 km^2).

Under the Wild Life Protection Ordinance 1998, only the Tukong Ara-Banun Wildlife Sanctuary with a total area of 1.40 hectares is declared as an MPA for the protection of two rocky isles that are used by migratory birds as roosting areas. The proposed extension II of the Samumsam Wild Life Sanctuary will include part of the coastal waters with a total area of 466 hectares for the

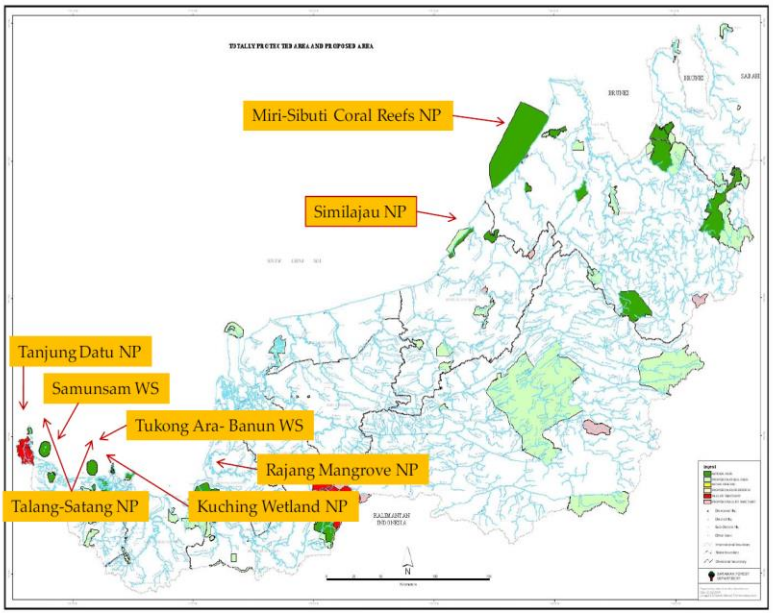
protection of the painted terrapin's (*Callagur borneonsis*) critical habitat. This is currently under an initial gazettement process[43].

Table 9: Marine Protected Areas in Sarawak

No	Marine Protected Areas	Water Bodies (ha)	Conservation Purpose
1	Tukong Ara-Banun Wildlife Sanctuary	1.4	Roosting sites for migratory birds
2	Tanjung Datu National Park	1,379	Turtles nesting beach and coral reefs
3	Miri-Sibuti Coral Reef National Park	186,930	30 submerged reefs
4	Kuching Wetland National Park	6,610	Mangrove protection and Irrawaddy dolphin conservation
5	Rajang Mangrove National Park	9,373	Mangroves protection and Irrawaddy dolphin conservation
6	Pulau Bruit National Park Extension	10,655	Protection of Important Bird Area
7	Talang-Satang National Park	19,414	Major turtle nesting beaches and coral reefs

Source: Sarawak Forestry Corporation

Map 12: Location of key Marine Protected Areas in Sarawak



Source: Forest Department Sarawak

In continuation of the State Government's efforts towards protection of marine ecosystems, habitats and species, a number of other areas to be declared as MPA or extension of present protected areas have been proposed. These areas include the Samumsam Wild Life Sanctuary

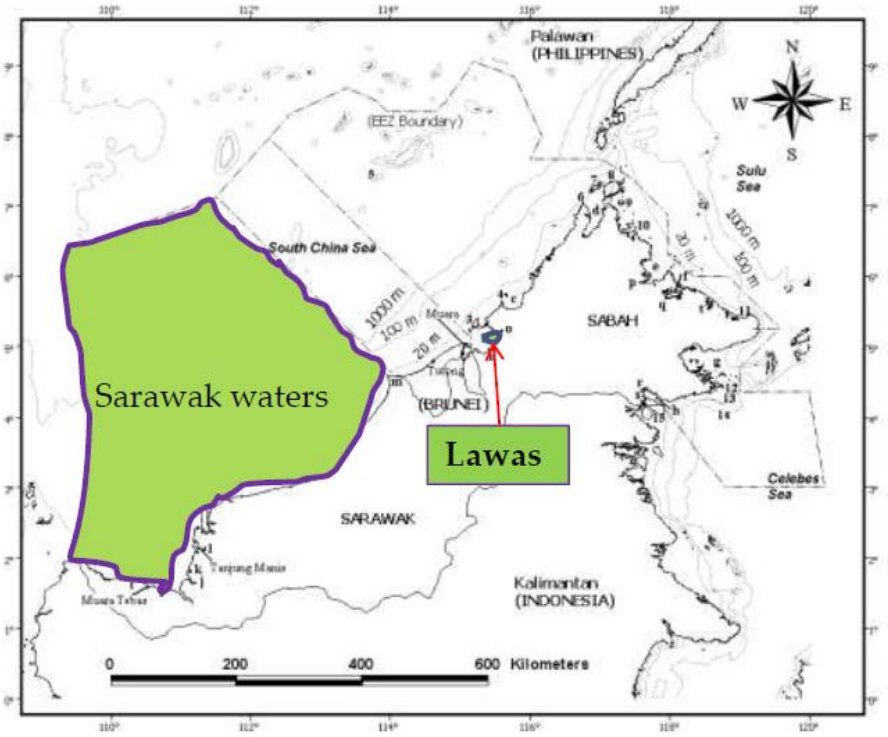
[43] Sarawak Forestry Corporation

Extension II, the Similajau National Park Extension 2, the Limbang Mangrove National Park, the Pulau Bruit National Park Extension and the Santubong National Park Extension.

The State government is striving to gazette the waters of Lawas in the Bay of Brunei as an MPA for the protection of dugongs and seagrass habitat by 2016.

Lawas Bay is recognized as a critical foraging habitat for various species of endangered marine animals. To date, eight (8) species of seagrass (i.e. *Thalassiahemprichii*, *Halophila minor*, *Halophila ovalis, Cymodocea rotundata, Halodule pinifolia, Halodule uninervis, Enhalus acoroides and Halophila beccarii*) were confirmed to occur in this area with *Halophila* and *Halodule* as the dominant species[44]. This seagrass meadow is believed to be the largest in Malaysia.

Map 13: The Lawas waters in the Bay of Brunei for proposed dugong and seagrass MPA



Source: Sarawak Forestry Corporation

A number of studies on dugongs in Lawas waters have been undertaken which has seen the participation of several parties such as the Sarawak Forestry Corporation (SFC), Forest Department of, University Malaysia Sabah (UMS), University of Malaya (UM) and University Malaysia Terengganu (UMT). These efforts have recorded numerous dugong (*Dugong dugon*) sightings along its coastline and in coastal waters.

Aerial surveys were conducted in the coastal waters of Sarawak in year 2001, 2007, and 2008. During each of the surveys, dugongs were observed in the Brunei Bay and Lawas waters which have led to the confirmation of the existence of a viable population of dugongs in the area. In

[44] Bali,2005; Bujang *et al*., 2003; Ahmad-Kamil *et al*., 2010a; 2010b; Zakaria, 2004

addition, green turtles *(Chelonia mydas*) and hawksbill turtles (*Eretmochelys imbricata*) were also noted to be present during these surveys.[45]

Meadows *of Halophila sp.* and *Halodule sp.* seagrasses (a dugong food preference) were found to be abundant in the same area[46]. Feeding trails of dugong on seagrass beds have been found regularly during seagrass monitoring conducted periodically in the area. All these evidences suggest that Lawas waters are very crucial nursery, feeding and transient ground for dugongs.

In 2012, the Sarawak Forestry Corporation (SFC) has established 11 permanent stations for sea grass and water quality monitoring along the 25km stretches of beaches in Lawas waters. Three permanent plots for dugong grazing trails also have been placed in this area.

Through official gazzetment of these areas as a MPA, the SFC will possess the foundation to establish required management presence here; which will ensure the continuum of dugong and seagrass monitoring in the area through the availability of annual operational funds. Projects are ongoing in order to gain comprehensive knowledge of these dugongs as well as other marine endangered species biology, ecology and human-animal interactions in the area.

3. ICONIC SPECIES of MALAYSIA – TERRESTRIAL AND MARINE SPECIES– Status and Trends

3.1. Legal status

Protection of terrestrial species comes under the jurisdiction of the DWNP in Peninsular Malaysia. DWNP manages terrestrial national parks and wildlife reserves in Peninsular Malaysia, covering 0.7 million hectares; gazetted under the Wildlife Conservation Act 2010, National Parks Act 1980 and other state enactments. The Department is responsible for wildlife management, law enforcement activities, issuing licenses and permits for all activities involving protected wildlife species in Peninsular Malaysia including the CITES related permits. It also deals with human wildlife conflict cases and is involved in the planning and development of sustainable ecotourism products.

Since the 4th National Report was submitted, protection of terrestrial species in Peninsular Malaysia was given a boost with the enactment of the Wildlife Conservation Act of 2010 which repealed the Protection of Wildlife Act 1972. The Wildlife Conservation Act 2010 protects terrestrial wildlife species through the listing of species under numerous schedules which accord the species various levels of protection status.

[45] Jaaman *et al*. 2001, 2008; Bali *et al*.2008
[46] Bali, 2005; Bujang *et al*., 2006; Ahmad-Kamil *et al*., 2010a; 2010b; Zakaria, 2005

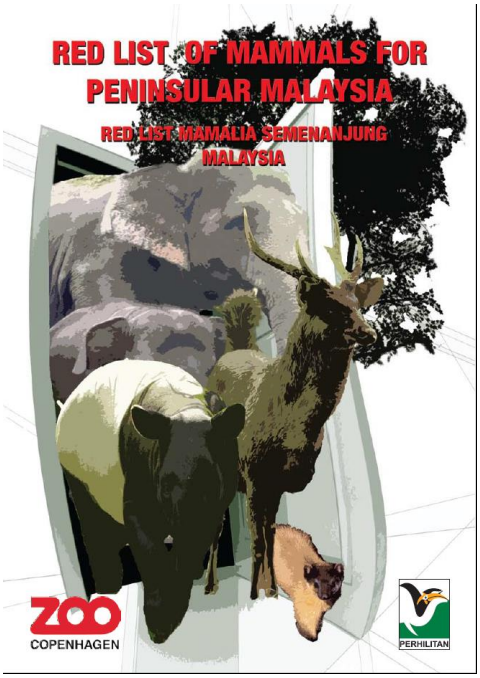
Table 10: Number of species listed and thereby protected under the Wildlife Conservation Act (Act 716)

Class	First Schedule Protected		Second Schedule Totally Protected		TOTAL	
	Genus	Species	Genus	Species	Genus	Species
Mammals	37	183	22	251	59	434
Birds	113	270	38	969	151	1,239
Reptiles	50	264	5	92	55	356
Amphibians	7	30	3	7	10	37
Arachnida	12	5	0	1	12	6
Insects	17	65	0	4	17	69
Gastropoda	0	1	1	0	1	1
TOTAL	**236**	**818**	**69**	**1,324**	**305**	**2,142**

Source: Department of Wildlife and National Parks, Peninsular Malaysia Compendium 2013

3.2 Red List of Mammals

DWNP for the first time embarked on an initiative to assess, review and update the conservation status of mammals in Peninsular Malaysia in 2009. The assessment which culminated in the development of a Red List of Mammals for Peninsular Malaysia, categorizes the status of species ranging from Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD) and Not Evaluated (NE).



Of the 222 species listed for Peninsular Malaysia reviewed in the 2009 assessment, it was found that[47]:

- Three (3) species are classified as EX namely the Indian grey mongoose, the Javan rhinoceros and the Banteng. For these species, there have been no records of sightings in the Peninsular for more than 50 years;
- One (1) species was classified as CR i.e. the Sumatran rhinoceros. The Sumatran rhino is currently considered to be under critical threat. It is undergoing continual decline, and since year 2000 after the period of the assessment mentioned above, it is believed to have been eradicated as a result of hunting pressures for commercial purposes;

[47] Red List of Mammals for Peninsular Malaysia 2009

- Twenty six (26) species have been classified as EN. The two main criteria used for the classification of these species as endangered are: i) if the area occupied by the species has declined by more than 50% over the past 10 years from 1990-2000 and ii) if the area of occupancy is less than 500 km^2 which was continuing to decline. The leopard and the Malayan tiger among others, have been classified as EN;
- Twenty two (22) species have been classified as VU i.e. the Asian Elephant, the Malayan Sun Bear and the Gaur amongst others; and
- Thirteen (13) species have been classified as NT with one hundred and fifty six (156) species being classified as being of LC.

3.3 The Malayan Tiger

Image 6: The Malayan tiger *(Panthera tigris jacksonii)* exclusively found in Peninsular Malaysia has been classified as a new subspecies since 2004. Source: WWF-Malaysia / Stephen Hogg

In the 1950's Peninsular Malaysia was presumed to have had as many as 3,000 tigers in the wild.[48] Tigers are not found in the States of Sabah and Sarawak. In 2004, the Malayan tiger was recognized as a new sub-species i.e. *Panthera tigris jacksonii*[49] that is genetically distinct from tigers of northern Indochina (*Panthera tigris corbetti*).

In current times based on confirmed and expected tiger habitats of 49,300 km^2 and possible tiger density range of 1-3 tigers/100 km^2 within tropical forests, a reasonable estimate of wild tigers in Peninsular Malaysia is around 500 individuals.[50] Four states in Peninsular Malaysia (Pahang, Perak, Kelantan and Terengganu) contain about 90% of the Malayan tiger habitats. Information on tiger distribution and population are based on inventory work, law enforcement efforts and human-wildlife conflict data by the DWNP and survey works at selected sites undertaken by NGOs.

The DWNP publishes annual reports that contain information on the human-tiger conflict and law enforcement efforts undertaken. To date, only two published robust tiger density estimates exists; one from the Taman Negara National Park which spans across the states of Pahang, Kelantan and Terengganu where the estimate is 1.10-1.98 tigers/100km^2 [51] and the other in

[48] Locke, 1954
[49] Luo *et al*., 2004
[50] Kawanishi *et al*., 2003
[51] Kawanishi and Sunquist, 2004

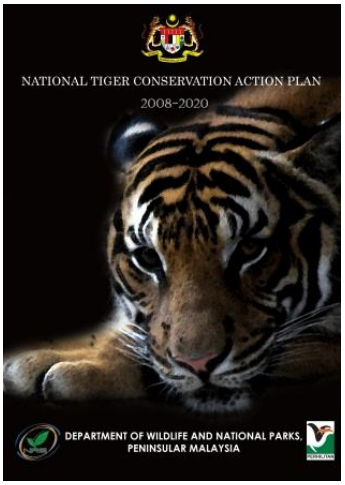
Gunung Basor Forest Reserve, situated in the state of Kelantan where the estimate is 2.59 tigers/100km^2.[52] More recently, baseline tiger density estimates were established for the Royal Belum State Park (1.98 tigers/100km^2) and Temengor Forest Reserve in the state of Perak (0.61 tigers/100km^2) using a more robust analytical framework[53]. These recent estimates by experts suggests that tiger densities could be well below 1 tiger/100km^2, especially in areas where tiger prey such as the sambar deer are scarce.

In order to halt the serious decline in tiger populations, the Government of Malaysia embarked on a bold step to double the number of tigers in the wild by up to 1,000 individuals by 2020. The ambitious plan that records this vision is the National Tiger Conservation Action Plan (NTCAP) that runs from 2008-2020.

The Plan is implemented at three spatial scales i.e. national, landscape and priority areas; known collectively as Tiger Landscapes.

The objectives of the plan are as follows:

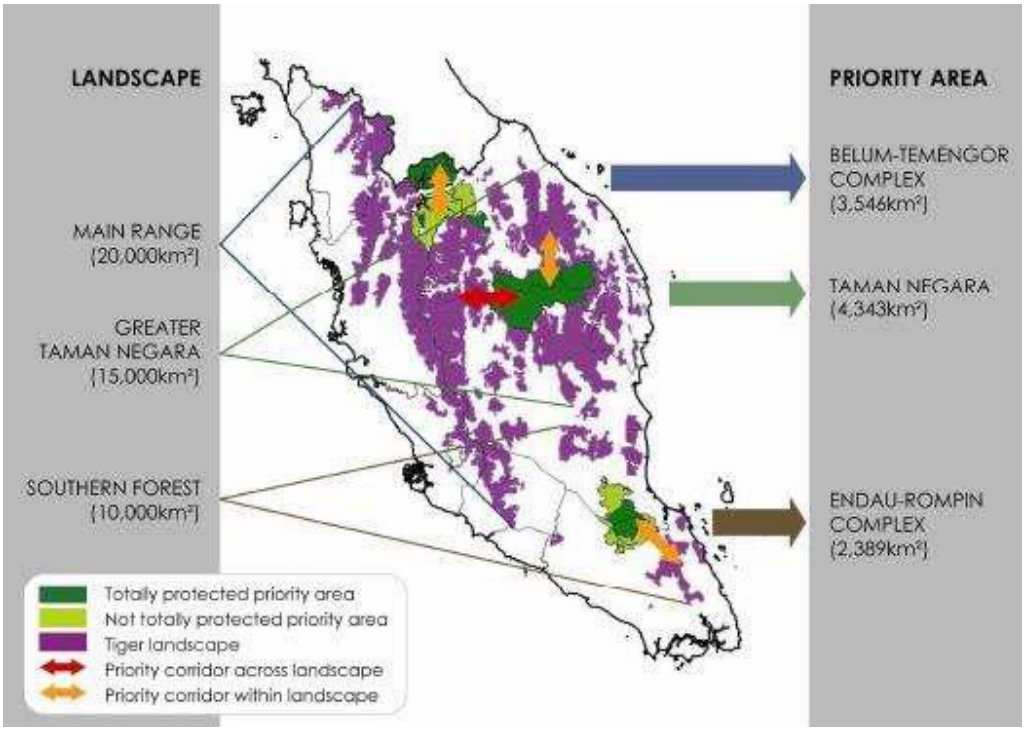
- To secure the Central Forest Spine (CFS) with strictly protected priority areas in landscapes connected with ecological corridors;
- To provide effective and long terms protection of tigers and their prey;
- To promote and practice ecologically sound land use, compatible with tiger conservation and outside priority areas; and
- Apply science in monitoring the efficacy of conservation actions and improve knowledge on tiger ecology.



The NTCAP recommends 80 actions and the implementation of these actions are monitored by a Stakeholder's Committee that meets annually under the chairmanship of the NRE. Although many of the actions are still in the process of being undertaken, several significant developments have been accomplished. This includes the enforcement of the new Wildlife Conservation Act in 2010, the strengthening of the law enforcement manpower within the DWNP with the addition 66 staff in 2013 and the acceptance of the CFS Master Plan in 2011 that envisages the securement of some 50,000 km^2 of contiguous forest with the development of 37 ecological corridors. Malaysia has developed one ecological corridor in Terengganu and two more are being developed in the States of Pahang and Perak. These ecological corridors will link the priority tiger habitats of Taman Negara National Park and Royal Belum State Park to the surrounding tiger habitats within forest reserves.

[52] Rayan and Mohamad, 2009
[53] Darmaraj, 2012

Map 14: Landscapes and Priority Areas of the NTCAP



Source: NTCAP

Two GEF projects secured will also contribute to tiger and habitat conservation namely the Protected Area (PA) Financing Project and the CFS Project. The PA Financing Project which is currently underway, will strengthen the management of three priority tiger habitats i.e. the Belum State Park; Taman Negara National Park and the Endau Rompin National Park through various sustainable financing initiatives and enhanced site/park level management. Additionally, the CFS Project will enhance the development of ecological corridors outside priority tiger habitats.

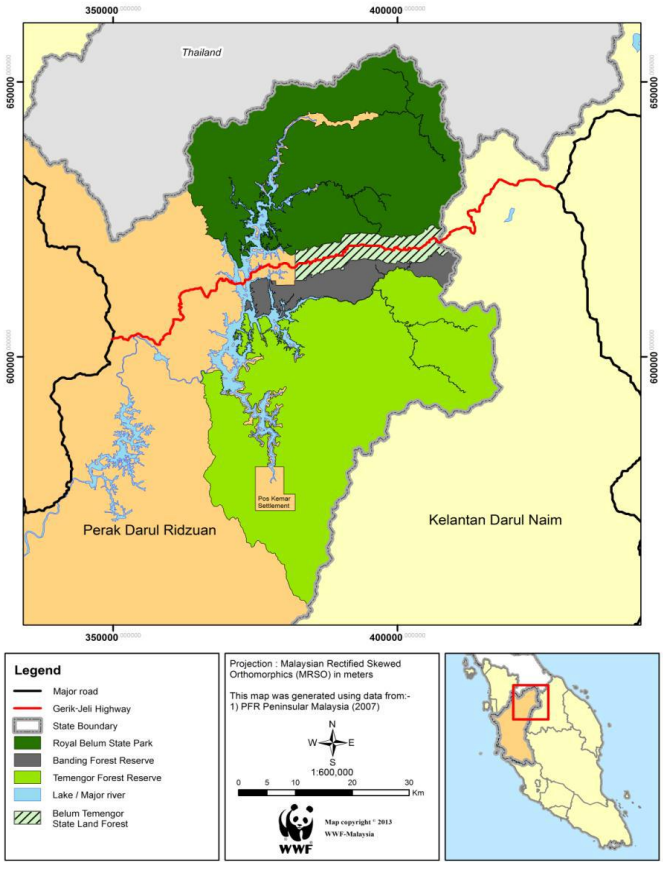
In a show of commitment towards tiger conservation efforts, the government has allocated US$53.13 million to develop seven (7) wildlife viaducts linking Taman Negara with adjacent forest reserves and the Royal Belum State Park in Perak with other adjacent forest reserves. The state governments have also shown equal commitment by approving the gazettement of some 35,000 hectares of forests around these wildlife viaducts as ecological corridors. DWNP is currently undertaking systematic surveys of tigers and prey species at Taman Negara National Park which is supported by a dedicated Tiger Unit established by DWNP in 2012. To date, the survey has covered at least 700km^2 of the forest within the Taman Negara and photographed more than 2,000 pictures of various wildlife species including tigers. Similar surveys are being undertaken at Endau Rompin National Park and Royal Belum State Park by World Wide Fund for Nature (WWF-Malaysia) and the Wildlife Conservation Society (WCS) under the NTCAP auspices. A national level workshop was also held in order to plan for the National Tiger Survey (NTS) within the CFS between 2014-2015; this being a recommended action under the NTCAP.

The NTCAP initiative involves the collaborative efforts of a whole host of stakeholders working with the government to realise the objectives of the Plan. In relation to scientific studies, the most recent study within tiger priority areas was conducted by WWF- Malaysia.

The study area involved the Belum Temengor Forest Complex, which has been identified as one of the three (3) priority areas for tigers under the NTCAP. In order to obtain baseline information on tigers and other species at this location, WWF-Malaysia conducted camera-trapping and sign surveys from 2009-2011. The surveys also included recorded information pertaining to illegal hunting and encroachment into the area which in turn, assists towards gauging the anthropogenic pressures present within the complex. Additionally, social surveys were duly executed with the local indigenous communities in order to assess illegal hunting levels and wildlife population trends.

Image 7: Recording signs of large mammals within the Belum Temengor Forest Complex. Source: WWF-Malaysia/Christopher Wong

The camera trap study showed that a total of 34 adult tigers and 17 offspring being detected. This appears to be an unprecedented record of individuals in relation to a tiger study in Malaysia. It was also found that the relative abundance, biomass and occupancy of all principal tiger prey species were higher in Royal Belum State Park than Temengor Forest Reserve, except for wild pig occupancy which was the same. With this showing, it stresses the importance of conserving priority lowland-hill dipterocarp forest patches (<750 m above sea level) for three of the principal tiger prey species: the gaur, sambar deer and the barking deer. [54]



Map 15: The Belum Temengor Forest Complex; the WWF-Malaysia Tiger Study Area Source: WWF-Malaysia

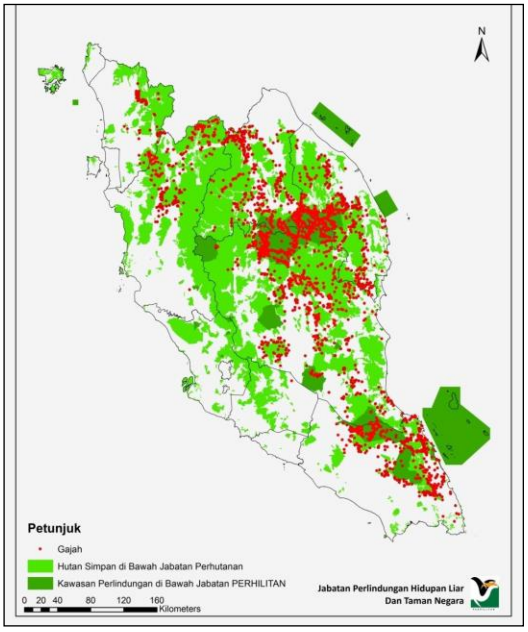
[54] Conservation Status of Tigers and Their Prey in the Belum Temengor Forest Complex-WWF Malaysia Report 2013

3.4 The Asian Elephant: Peninsular Malaysia

Image 8: A bull elephant captured via camera trap photography at a salt lick site in Taman Negara. Source: Department of Wildlife and National Parks.

In Peninsular Malaysia, wild elephants are found in a number of states with an estimated population between 1,220 - 1,680. The Taman Negara National Park holds the largest population of elephants in Peninsular Malaysia with an estimate of 600-650 elephants. This is due to the fact Taman Negara National Park is the largest protected area and has been the main release area for elephants since 1983. Elephant falls under the Totally Protected classification under the Wildlife Conservation Act 2010.

Main threats to elephant populations include habitat loss and fragmentation, illegal killing and human elephant conflict. The conflicts occur due to shrinking habitats that cause elephants to venture out of the forest in search of food which result in elephants coming into contact with agricultural areas that fringe the forest. In 2009, the DWNP initiated the erecting of electrical fences that would prevent elephants from encroaching into villages and plantation areas. Currently, a total of 100 km of electric fences have been constructed located in key range states such as Perak, Kelantan, Terengganu and Johor.



Map 16: Distribution of elephants in Peninsular Malaysia indicated by red markings

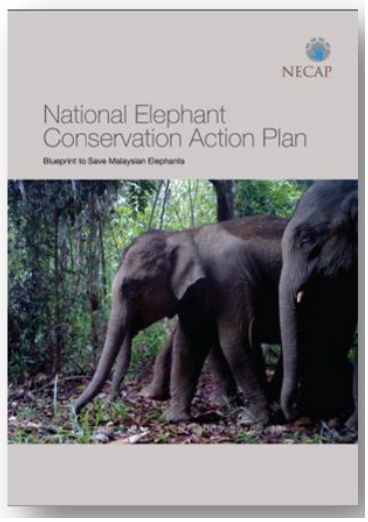
Source:Department of Wildlife and National Parks

To conserve elephant population in Peninsular Malaysia, the National Elephant Conservation Action Plan (NECAP) was developed and launched in 2013. The following main elements are highlighted in NECAP:

- Ensuring human–elephant co-existence as the key objective of the NECAP;
- The restoration and maintenance of socially and ecologically functional elephant population densities;
- Maintaining the present elephant ranges;
- CFS will be treated as three Managed Elephant Ranges (MERs) with appropriate zonation. The three (3) MERs are centred on three priority sites namely the Belum Temengor Complex, Taman Negara, and the Endau Rompin Complex; and
- Adoption of an evidence-based and adaptive management approach to elephant conservation and management.

The purpose of the NECAP is to provide a focused conservation strategy that lays out specific actions for the next 10 years (2013–2022) with the overall goal of securing viable and ecologically functional elephant populations in Peninsular Malaysia. As such, the NECAP focuses on 10 year goals with measurable 5 year targets.

The Management and Ecology of Malaysian Elephants (MEME) Project was launched in conjunction with International Day for Biological Diversity 2012. This 5 year project is undertaken with the collaboration of University of Nottingham Malaysia Campus and DWNP. This project is funded by the Sime Darby Foundation and premised on a smart partnership between the government, corporate sector and private universities with the objective of enhancing elephant conservation of efforts in the country. Among others, the project will look into the development of practical long-term management strategies based on the scientific understanding of the ecology and behaviour of elephants.



3.5 The Pygmy Elephant of Borneo: Sabah

Image 9: The Borneon Elephant, also referred to as the Pygmy Elephant.
Source-Strategic Plan of Action (SABAH)-The Heart of Borneo Initiative 2014-2020

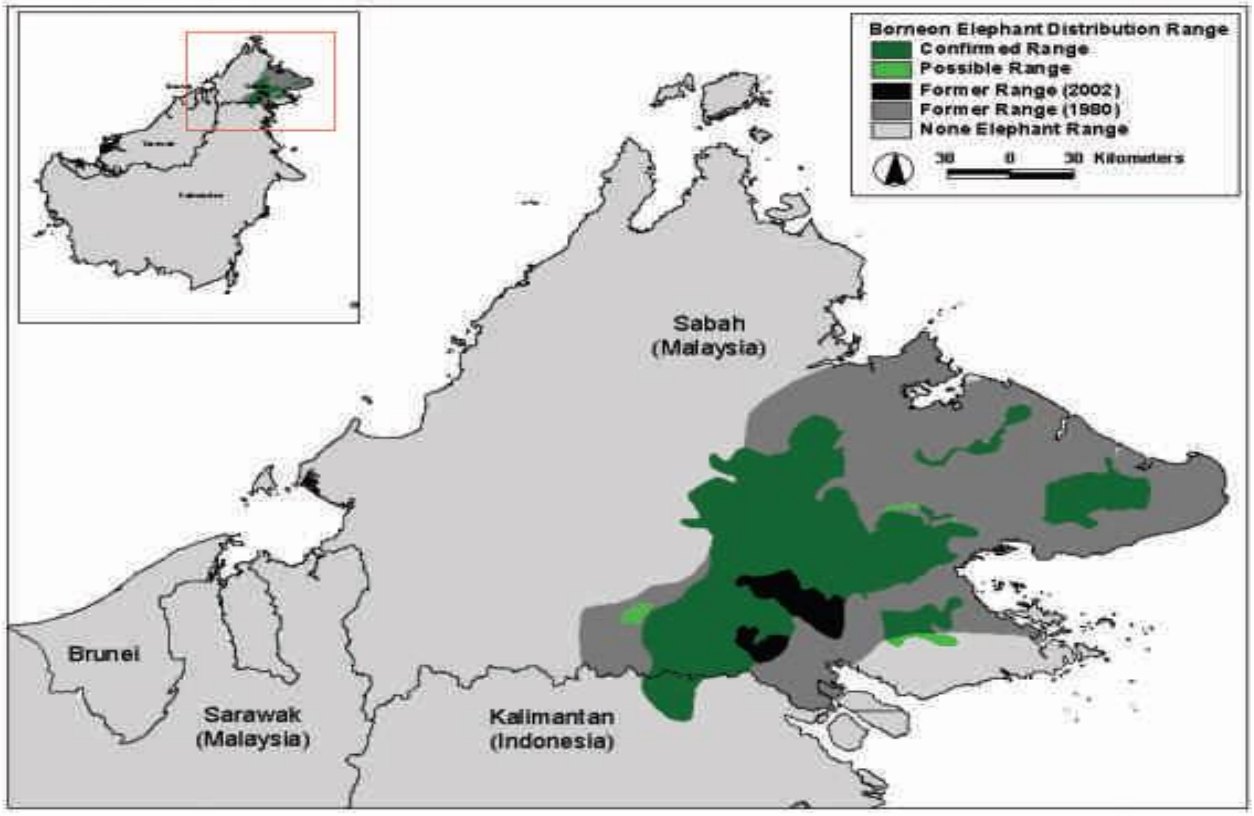
The origin of the Borneon elephant is considered controversial and unclear, even though there are studies that state that the Asian Elephant in Sabah, known as the Bornean Pygmy Elephant (*Elephas maximus borneensis*) is considered '**an evolutionary significant unit found nowhere else in the world'**.[55] These wild elephants occur only in the northeastern part of Borneo along the border between Sabah and Kalimantan. In Sabah, they are found within forested areas in the south, centre and east of the state. Recent surveys carried out by the Sabah Wildlife Department and WWF-Malaysia provides a population estimate of 2,040 elephants in Sabah.[56]

The Pygmy elephant faces many threats, mainly from fragmentation and degradation of forest habitats upon which they rely. There appear to be increasing emergence of human wildlife conflict. The disruption of traditional elephant migration routes have displaced many elephants resulting in further such conflict.[57]

Wildlife experts who have conducted studies on the Pygmy elephant concluded that elephant density and population size will vary according to various factors such as conversion of lowland forests, habitat fragmentation and current land use activities. Their studies also indicate central forests as having the highest number of elephants (more than 1,000). Protecting the central forest is thus a crucial factor towards ensuring that the conservation status of this species remains viable. Ensuring the intactness of the central forest and which is contiguous with other forests is a means to the continued survival of the Pygmy elephant. The challenge now is to ensure that no further loss and habitat fragmentation occurs in five (5) key habitat ranges in Sabah.

[55] Fernando *et al*., 2003
[56] Alfred *et al*., 2010a
[57] HUTAN Elephant Conservation Unit- 2010 Yearly Activity Report

Map 17 : Distribution of Pygmy Elephant in Sabah



Source: Elephant Action Plan of Sabah.

Table 11: Population size and density estimates in 5 major elephant ranges in Sabah

Range	Range Description	Area (sq. km)	Estimated Population Size (number of individuals)
Lower Kinabatangan	Kinabatangan Floodplain	400	298
North Kinabatangan	Deramakot, Tangkulup and Segaliud-Lokan Forest Reserves	1,400	258
Central Sabah	Ulu Segama, Malua, Kuamut, Gunung Rara, Kalabakan and Sapulut Forest Reserves and Danum Valley Conservation Area	7,900	1,132
Tabin	Parts of Tabin Wildlife Reserve	1,200	342
Ulu Kalumpang	Ulu Kalumpang Forest Reserve and the northern part of Tawau Hills Park	510	10
Total		**11,410**	**2,040**

Source: Sabah Biodiversity Outlook 2012

In recognition of the need to preserve Pygmy elephant populations and halt further decline of the species, the Sabah Government has put in place the 'The Elephant Action Plan of 2012 – 2016'[58] which is currently in force. Amongst the key stategies and activities identified within the Plan are to:

- Secure the long-term viability of the elephant populations in Sabah;
- Promote zero poaching/killing through strict law enforcement and synchronized awareness programmes;
- Officially declare the four (4) important elephant areas as MER i.e Lower Kinabatangan, North Kinabatangan, Tabin, and Central Sabah with a commitment to natural forest management and connectivity measures; and
- Design and implement a proper monitoring system of the four (4) MER.

3.6 The Orang utan

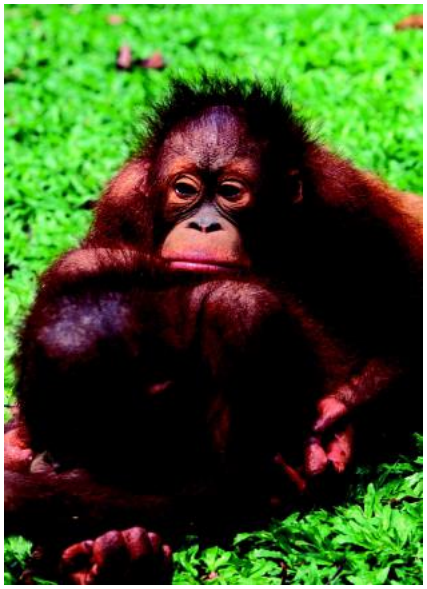


Image 10: The name Orang utan means "man of the forest". They are the only great apes found outside Africa. Source: WWF-Malaysia / Stephen Hogg

Orang utans are found both in Sabah and Sarawak in Malaysia. The Orang utans found in Sabah, the *Pongo pygmaeus morio*, is a sub-species and has been listed as Endangered on the IUCN Red List since 2008. It is a Totally Protected species under the Wildlife Conservation Enactment of 1997 which is Sabah's main wildlife protection legislation.

The population of Orang utans is estimated at 11,000 individuals and distributed among 14 major populations with each population having more than 25 individuals. Seven (7) populations are represented in 'Orang utan High Priority Areas' which contain more than 70% of total number of Orang utans in the state of Sabah. These Orang utan populations are the largest populations in the world and of exceptional conservation importance. In view of the fact that 60% of population of Orang utans live outside of protected areas, the Sabah State Government in view of this and other factors, has taken action to stop logging activities in two forest concession areas i.e. Ulu Segama/ Malua. These areas have been set aside as conservation areas for Orang utans.[59]

Orang utan numbers have been declining alongside their distribution range. Their decline is attributed to drastic habitat losses mainly due to land-use change. Other threats posed to Orang utans include habitat degradation, encroachment into protected areas and illegal killing of the

[58] Elephant Action Plan 2012-2016, Sabah Wildlife Department.
[59] Sabah Wildlife Department 2011 Orangutan Action Plan

animal. These have led to the gazzement of the Lower Kinatangan Wildlife Sanctuary in 2005 including instituting the temporary logging ban within the Ulu Segama/Malua concession areas; mentioned above.

Table 12: High Priority Areas for Orang utans in Sabah and with population estimates for each areas.[60]

NO	AREA	STATUS	ORANG UTAN POPULATION (ESTIMATED)
1.	Sabah Foundation Forest Concession Area	Commercial Forest Reserve	Ulu Segama Malua :2600 to 3000 (129-5866)[1,2,3] Other FMUs: 2100[1,2,3]
2.	Danum Valley Conversation Area	Protection Forest Reserve	425 (309-570)[3]
3.	Forest of Upper Kinabatangan (North)	Commercial Forest Reserve	1700 to 2100 (1016-3403)[1,3]
4.	Tabin Wildlife Reserve	Wildlife Reserve	1200 (868-1606)[1,3]
5.	Lower Kinabatangan	Virgin Jungle Reserve, Wildlife Sanctuary and private land	700 to 825 (546-955)[2,3]
6.	Kulamba Wildlife Reserve and Trusan Kinabatangan Forest Reserve	Wildlife Reserve, Mangrove Forest Reserve.	480 (276-1214)[2,3]
7.	Ulu Kalumpang, Mt. Wullersdorf and Tawau Hills.	Protection Forest Reserve, National Park.	144 (54-408)[1] to 605 (487-783)[3]
8.	Trus Madi Forest Reserve	Commercial Forest Reserve and Protection Forest	282 (126-736)[1]
9.	Kabili-Sepilok Forest Reserve	Virgin Jungle Reserve	200 (100-300)[4]
10.	Crocker Range Park	National Park	181 (62-528)[1]
11.	Bonggayya Forest Reserve	Commercial Forest Reserve	111 (38-324)[1]
12.	Lingkabau Forest Reserve	Commercial Forest Reserve	100 (75-150)[4]
13.	Silabukan Forest Reserve	Protection Forest Reserve	58 (21-159)[1]
14.	Kinabalu Park	National Park	50 (25-75)[1]
15.	Ulu Tungud Forest Reserve	Commercial Forest Reserve	29 (9-99[1])

Sources: [1] Ancrenaz *et al.*, 2005 [2]Ancrenaz *et al*, .2010, [3]Alfred *et al.*, 2010b Payne 1987

In securing the conservation and continued existence of viable populations of Orang utan in Sabah, the state is currently implementing the 'Orang utan Action Plan 2012-2016 '.[61] It prescribes a number of key actions which include the following:

- Reconnecting fragmented lanscapes containing Orang utan sub populations by creating contigous corridors of natural forests;
- Bio-monitoring and scientific research; and
- Design better forest management practices that are compatible with Orang utan survival.

[60] Sabah Biodiversity Outlook 2012
[61] Sabah Wildlife Department 2011 Orang utan Action Plan

In Sarawak, main conservation areas for Orang utan is located at the Batang Ai National Park and the Lanjak Entimau Wildlife Sanctuary. The Sarawak State Government continues to conduct various Orang utan surveys and monitoring activities. One such survey has led to a new discovery of populations in the Ulu Sungai Menyang area. This area is adjacent to the proposed southern extension area of the Batang Ai National Park.

Recent orang utan nest count surveys conducted here by the WCS in 2011 estimated that the Orang utan density was 1.5 Orang utans per km^2. Using this estimate of Orang utan density, there is a possibility of a population of up to 200 Orang utans inhabiting the area. The main goal of the survey was to determine the detection and non-detection of Orang utans via nests count at the Sungai Menyang area.

Image 11: Female orang utan seen at Ulu Sungai Lelap, Northern Batang Ai National Park.
Source: Forest Department Sarawak

These surveys are the result of collaborations between four different organizations, namely the Sarawak Forestry Corporation, the Forest Department Sarawak, WCS and Borneo Adventure. The first survey which was conducted in July 2012 recorded a total of 426 nests. In February 2013, a much larger survey showed a result of nearly 1,000 nests. In total, these teams have recorded a total of 22 sightings of orang utan at different areas during the survey periods. As a result of these surveys and related findings, the Menyang Landscape area of approximately 14,000 hectares has been declared by the Sarawak State Government to be HCVF for Orang utans. The State Government has rejected all proposals to log or convert the areas and has provided the local communities exclusive rights to implement and manage the ecotourism activities within the Ulu Menyang Landscape.

3.7 The Proboscis Monkey

Proboscis monkeys (*Nasalis larvatus*) are endemic to the island of Borneo and populations of these species are found both in Sabah and Sarawak. A 2008 Sabah wide population survey estimates the population of this species at around 5,907 individuals. They are found along coastal river systems through out Sabah where suitable habitats still exist. There are currently only five (5) major centres of continuous distribution and a large number of small isolated populations. Based on the survey in 2008, it cannot be concluded whether populations have increased or decreased.[62] The main threats to the species is the conversion of riparian and

[62] John C. M. Sha, Henry Bernard, Senthival Nathan - Status and Conservation of Proboscis Monkeys (Nasalis larvatus) in Sabah, East Malaysia-Primate Conservation- 2008"

coastal mangrove habitats to plantations. These conversions have resulted in fragmentation of otherwise continous populations along rivers. This situation could very well lead to local extinction of remnant populations of the Proboscis monkey that are trapped in small fragmented forests.

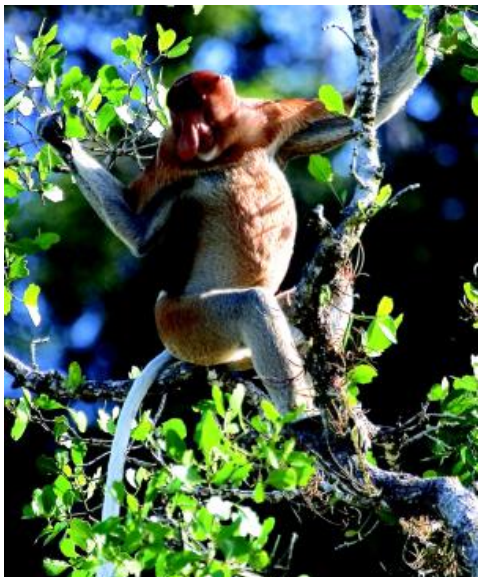


Image 12: The Proboscis monkey (*Nasalis larvatus*) with its signature large fleshy nose and pot-bellied stomach is found only on the island of Borneo in Southeast Asia.
Source: WWF-Malaysia / Stephen Hogg

The Proboscis monkey in Sarawak is popularly known as the 'Orang Belanda' or 'Rasong' by local communities and tribes and is a Totally Protected species in Sarawak. Their main habitats are mangrove forests, low land forests[63], riverine forests and kerangas forests.[64] It is estimated that 2,000 individuals are found in the whole of the State.[65] At present, only five (5) areas have been identified and recorded in Sarawak where viable populations of Proboscis monkeys can be found. These areas are the Bako National Park, Kuching; Kuching Wetland National Park; Samunsam Wildlife Sactuary, Kuching; Maludam National Park, Sri Aman and the Kuala Lawas Forest Reserve, Limbang.

The Proboscis monkeys at Bako National Park for example have now become the focal icon for the park. The area supports a steadily increasing population of the species. Initially confined to the Bako National Park area, as a result of the protected nature of park, populations within the National Park have arisen to levels beyond its carrying capacity and populations are spreading across the bay and into the Santubong area. Groups can now be easily seen up the mountain and in the mangroves fringing the bay.[66]

[63] Kawabe and Mano, 1972
[64] Salter *et al*., 1985
[65] Salter and Mackenzie,1985
[66] Proceedings of the 7th Hornbill workshop on Protected Areas and Biodiversity Conservation, 2005

3.8 Marine Turtles: Peninsular Malaysia

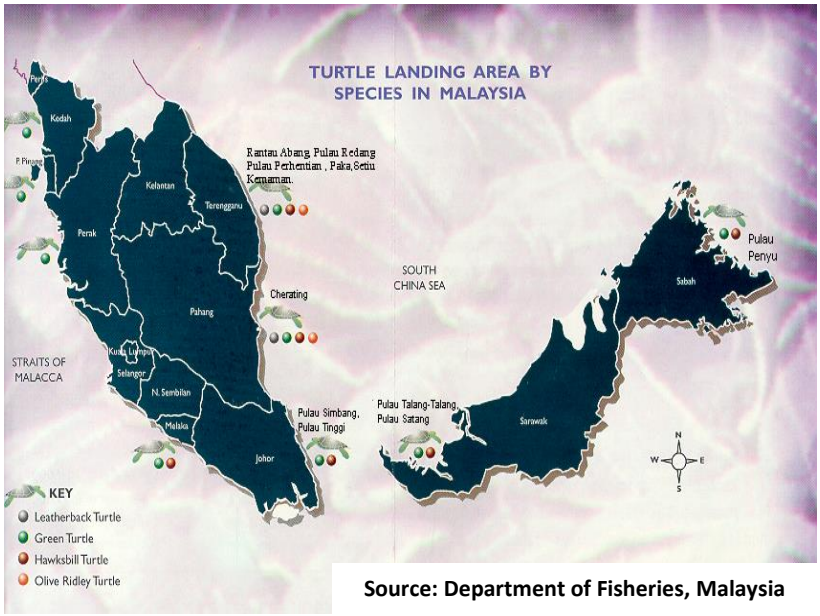
Four (4) species of marine turtles are known to land in Malaysia. They are the Green Turtle (*Chelonia mydas*), the Hawksbill Turtle (*Eretmochelys imbricata*) the Olive Ridley Turtle (*Lepidochelys olivacea)* and the Leatherback turtle (*Dermochelys coriacea*).

The IUCN Red List Global Status has categorized Hawksbill and Leatherbacks as CR, Green Turtles as EN and the Olive Ridley as VU.

The Department of Fisheries Malaysia (DOF) is the lead agency for the conservation and management of marine turtles in Peninsular Malaysia and the Fisheries Act of 1985 is the main Federal legislation with regard to marine turtles.

Image 13: Leatherback Turtle (*Dermochelys coriacea*).
Source- Department of Fisheries, Malaysia

Conservation efforts in Peninsular Malaysia can be noted to go far back as the early 1970's in the state of Terengganu with the establishment of the first turtle hatchery in 1971 at Rantau Abang.



Source: Department of Fisheries, Malaysia

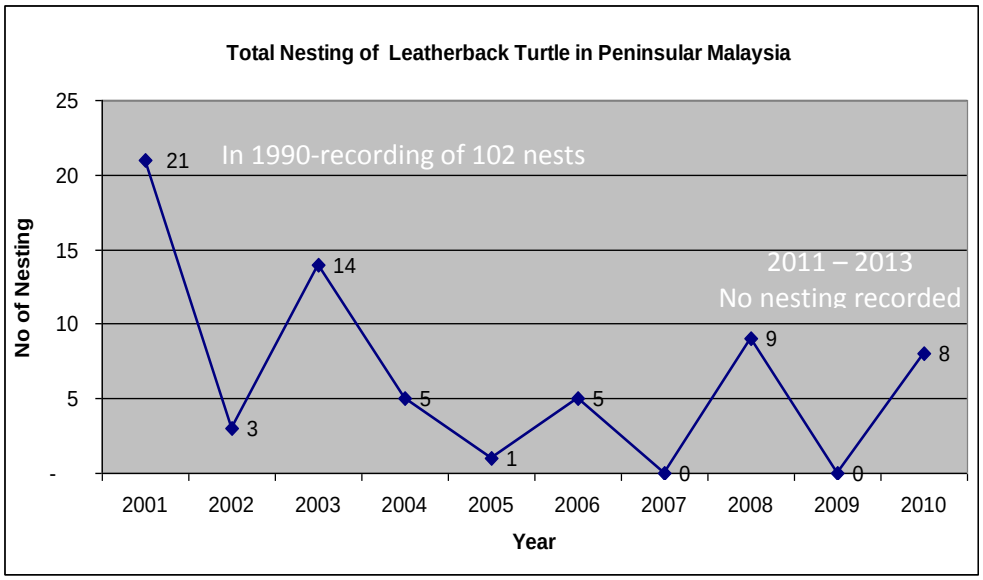
Map 18: Turtle Landing Areas in Malaysia by Species

Marine turtles and their derivatives continue to be exploited for consumptive and non-consumptive uses. Marine turtle populations in Southeast Asia have been seriously depleted through long-term harvest of turtles and their eggs, through by-catch in trawl fisheries and through habitat destruction. In recent times, direct poaching of marine turtles is considered to be the number one threat to the survival of marine turtles.

One of the major threats to regional turtle populations is the near-complete depletion of localized populations in Southeast Asia. As a result of long-term harvesting of turtle adults and eggs, this has resulted in the collapse of valuable breeding populations. For example, in Terengganu, the eggs of the Leatherback Turtle (*Dermochelys coriacea*) have been systematically

harvested for hundreds of years, and as result, the nesting population has crashed from 5,000 nests per year, down to an average of only 10 nests per year.

Figure 2: Statistics of Total Leatherback Turtle Nesting in Peninsular Malaysia from 2001-2010



Source: Department of Fisheries Malaysia

In Peninsular Malaysia, marine turtle population trends in relation to nesting data are available for the last 22 years.

Trends at nesting sites indicate the following[72] :-

- Leatherback turtles have declined by 96 % in the last 22 years. The current annual nesting density is about 4 nests per year, the last of which was recorded in 2010 consisting of 8 nests (as indicated in the chart above);

- Olive Ridley turtles have declined by 96%. Nesting still occurs at an average of 5 to 7 nests in the last five years. The Olive Ridley's nesting area is fragmented and isolated in the state of Terengganu, Penang Island and Perak;

- Green turtles have slightly declined with a total annual nesting of 5,428 in 1991 to 3,822 nests in 2012. Green turtles are known to nest mostly in Perak (Pantai Remis) but they can also be found in Pahang, Johor, Penang and Kedah; and

- The population of Hawksbill turtle is stable with a total annual nesting of 389 in 1991 to 389 nests in 2012. The Hawksbill turtle's main nesting area is in the State of Malacca.

Conservation efforts for turtles continue to be put in place in hopes to save marine turtle populations. Efforts include the establishment of turtle sanctuaries and hatcheries in various states.

[72] Department of Fisheries, Malaysia

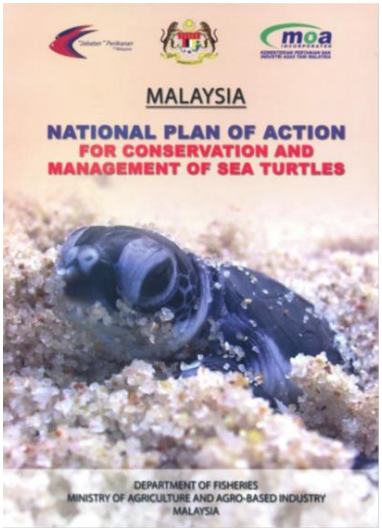
Table 13: List of Turtle Sanctuaries/Hatcheries Established in Peninsular Malaysia

States	Name of Turtle Sanctuary/Hatchery	Year Established
Terengganu	Rantau Abang Turtle Sanctuary	1998
	Ma' Daerah Turtle Sanctuary	2003
	Mak Kepit, Redang Island	1991
	Cagar Hutang, Redang Island	1995
	Pulau Pinang, Redang Island	2010
	Setiu	2003
	Cakar Hutan	2005
	Geliga	1999
	Tiga Ruang, Perhentian Island	2000
Pahang	Cherating	1999
	Juara Beach, Tioman Island	2008
	Melina Beach, Tioman Island	2009
	Teluk Sri Intan, Tioman Island	2008
Johor	Tinggi Island	2007
	Air Papan	2007
Malacca	Padang Kemunting, Masjid Tanah	2000
Negeri Sembilan	Glory Beach Resort, Port Dickson	2010
Perak	Segari, Pantai Remis	2003
Pulau Pinang	Kerachut Beach	2004

Source: Department of Fisheries, Malaysia

To enhance the conservation of turtle, the National Plan of Action for Conservation and Management of Sea Turtles was adopted.

The objective of the Plan of Action is to undertake comprehensive programmes and actions towards the protection, conservation and enhancement of sea turtle populations in Malaysia.



The main priorities under the Action Plan include:

- To constitute a national ban on commercial sale of turtle eggs;
- To produce at least 80% success hatching rate of eggs incubation in all states;
- For all states to harmonise their legislation according to the new legislation of sea turtles;
- For relevant states to gazette turtle sanctuaries in all important nesting beaches and protect all other nesting beaches;
- To establish a Malaysian Turtle Working Group (MTWG);
- Tagging and monitoring of sea turtles on all important nesting beaches;

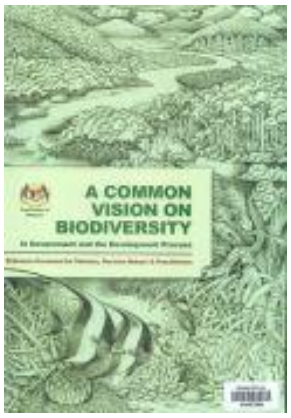
- Assessment and reduction of turtle by-catch (e.g. through observer programmes); and
- To sign and thereby become a member of the Indian Ocean – South-East Asian Marine Turtle (IOSEA) Memorandum of Understanding (MoU) on sea turtles.

The Malaysian Turtle Working Group has been established and in a milestone event, Malaysia signed the IOSEA MoU, which took effect on 1st of December 2011.

4. PART TWO: THE NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN, ITS IMPLEMENTATION AND THE MAINSTREAMING OF BIODIVERSITY

Part Two aims to mainly provide information that highlights a suite of actions that Malaysia has taken to implement the Convention since the submission of the last report as well provide some description of efforts at the macro level to mainstream biodiversity into relevant sectoral and cross sectoral strategies, plans and programmes. The focus areas are primarily on actions taken in relation to legislative changes, national policy developments/initiatives.

4.1 A Common Vision on Biodiversity – Macro Biodiversity Mainstreaming Approaches



A policy document titled 'A Common Vision on Biodiversity' was released by NRE in 2008 and officially adopted by the National Biodiversity and Biotechnology Council of Malaysia in 2009. It serves as a guiding tool for planners, decision makers and practitioners at all level of governments with respect to biodiversity planning and management.

It largely constitutes a three-pronged implementation approach that consists of:

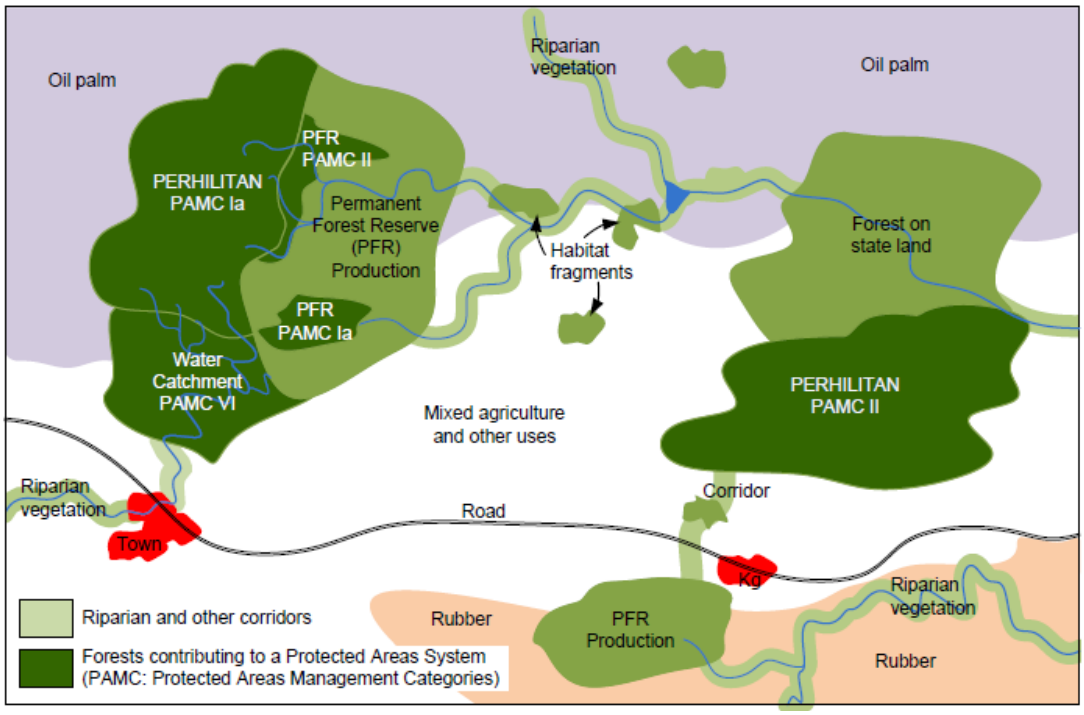
i) Strengthening the Protected Areas System;
ii) Land/Seascape Management for Biodiversity; and
iii) The Mainstreaming of Biodiversity.

Under the first approach above on Strengthening the Protected Areas System, the Common Vision recognises that conserving biodiversity exclusively by setting aside PA is alone insufficient and that a PA System as such is most successful if it is designed and managed within the context of an 'ecosystem approach'. This approach gives due regard to the importance of corridors and interconnectivity of various categories of PA and to external threats such as pollution, climate change, and invasive alien species. The Common Vision expands on the ecosystem approach and advocates that it be seen as an avenue to mainstream biodiversity conservation into broader land and seascapes.

To further aid planners and decision makers, a conceptual presentation of a landscape approach to conserving biodiversity is also featured in the Common Vision document (example at Image 14 below). This figure incorporates riparian and other corridors to maintain connectivity between habitat fragments and to sustain the integrity of aquatic systems. It can also be seen that the Protected Areas Management Categories is a tool for implementation of an ecosystem approach.

However, it is recognised that these PA need to be accompanied by sustainable management actions over the wider environment to ensure that ecosystem functions are not disrupted. The same figure also illustrates how various sites under different management jurisdiction such as wildlife, forestry and other land use classifications, contribute to the overall PA system.

Image 14: Illustration of a conceptual presentation on landscape approach to conserving biodiversity



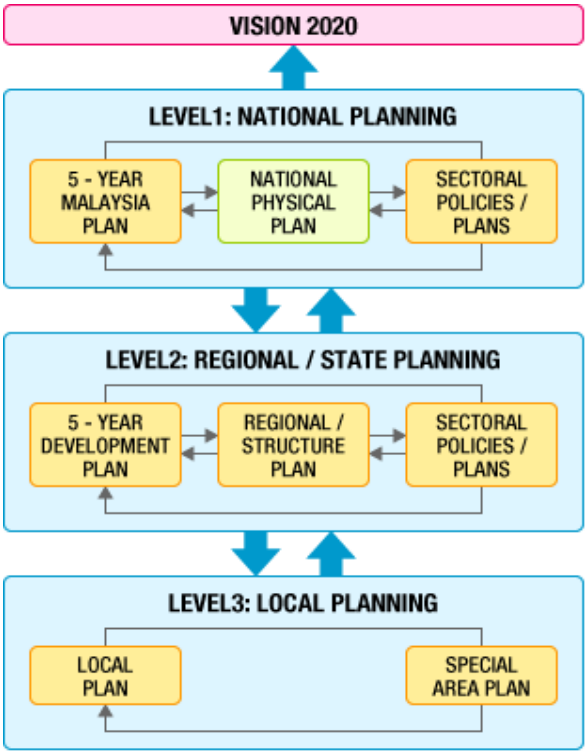
With regard to land/seascapes management for biodiversity as highlighted in (ii) above recognises that habitat loss and fragmentation have affected biodiversity at all levels. It highlights the important biodiversity management to be done in a holistic manner through complementary inter-agency actions. It also stipulates the need for inter-sectoral communication and cooperation across all levels of government and civil society.

With regard to mainstreaming of biodiversity at (iii) above, the primary short term goal is to strengthen NRE position as a facilitation and central body for mainstreaming biodiversity and thereby provide support to other agencies in their efforts to integrate biodiversity values. The Common Vision also outlines a number of options for mainstreaming biodiversity which include industry standards, codes of conduct, guidelines, biodiversity integration into legal frameworks and certification schemes. The Common Vision also highlights the need to incorporate various economic and financial tools in order to achieve comprehensive biodiversity and sustainable development goals.

To facilitate the implementation of the Common Vision, NRE produced a series of guidelines for planners, decision makers and practitioners in managing biodiversity in the landscape, riparian zones and a trainer's guide with a self-help CD.

4.2 National Physical Plan 2 (NPP-2) – Spatial Planning Mainstreaming

Image 15: National Development Planning Framework in Malaysia



Source: NPP-1, 2005

At the national level, development planning is guided by the Five-Year Malaysia Plan, the National Physical Plan (NPP) and other sectoral national policies. These policies/plans constitute the overall development planning framework for Malaysia.

In Peninsular Malaysia, the key document that acts as the national spatial framework is known as the NPP. The first NPP was approved in 2005 and was subsequently reviewed every 5 years. Since the submission of the last national report, Malaysia has released the second generation National Physical Plan known as the NPP-2. It was approved by the NPP Council on 13th August 2010. The objective of NPP-2 is to "optimise utilisation of land and natural resources for sustainable development and biodiversity conservation". The NPP-2 contains 41 policies acting as development strategies. These are subsequently divided accordingly into 8 development themes and accompanied by 254 implementation measures corresponding to each theme.

Key development themes under the NPP-2 are:-

- Setting a national spatial framework;
- Enhancing national economic competitiveness;
- Conserving agriculture resources and promoting rural development;
- Sustainable tourism development;
- Managing changing human settlements;
- Conserving natural resources, biodiversity and the environment;
- Integrating the national and urban transportation network; and
- Providing appropriate infrastructure.

An important role of the NPP-2 is to consolidate and standardise the categorisation and ranking of land for multiple uses as well as for protection and conservation purposes. Policy item 22 in the Plan states that "Environmentally Sensitive Areas (ESAs) shall be integrated in the planning and management of land use and natural resources".

A key feature is to earmark these ESAs into various 'ranks'. According to the ranking attached to a particular ESA, these areas are to remain untouched by development, conserved or sustainably managed depending on the type, characteristic and level of sensitivity/ importance involved. Typically these areas are of critical importance in terms of the goods, services and life-support systems they provide such as water purification, pest control and erosion regulation as well areas that harbour the wealth of the nation's biodiversity. The management criteria in relation to the current ranks of ESAs are as follows:-

ESA Rank 1 - that no development, agriculture or logging shall be permitted except for low-impact nature tourism, research and education. Areas under this rank (for biodiversity protection) have been listed as all existing and proposed PAs, important small habitats outside the PA system such as turtle landing sites, salt licks, important plant, areas, limestone outcrops and natural wetlands of high conservation value.

ESA Rank 2 - that no development or agriculture expansion is allowed. Sustainable logging and low impact nature tourism may be permitted subject to local constraints. For biodiversity protection these include all other forests and wetlands outside of PAs.

ESA Rank 3 - Controlled development whereby the type and intensity of the development shall be strictly controlled depending on the nature of the constraints. For biodiversity protection, these areas include marine parks.

In addition to assigning these ranks to ESAs, the NPP-2 also prescribes a number of measures in relation to ESAs that is aimed at achieving effective management and protection of ESAs.

These measures include:-

- That the wise use and conservation of ESAs in Peninsular Malaysia shall be in accordance with the management criteria listed above. All levels of spatial planning shall take into account the Guidelines for Managing Biodiversity in the Landscape by NRE;
- That Structure Plans and Local Plans shall detail out the ESAs identified in the NPP to include other ESAs that may be of importance at the state or local levels. ESA categories and corresponding management criteria in the NPP shall be retained in the Structure Plans and Local Plans. Additional management criteria shall be elaborated in the Structure and Local Plans for all ESA types falling under ESA Rank 3;
- That the boundaries of all ESAs shall be delineated in the Structure and Local Plans. Eventually, these boundaries should be clearly demarcated on the ground; and
- That there shall be adequate buffer zones between ESA (Rank 1 and 2) and urban or agriculture development. Guidelines for land use in buffer zones shall be established.

Permanent buildings should not be permitted in buffer zones. These buffer zones may be utilised for agroforestry, subject to the above guidelines. Within the designated conurbations, ESA buffer zones may be incorporated into the green belts.

4.3 Legal Frameworks – Improving Biodiversity Protection as Stipulated under the National Policy on Biological Diversity

4.3.1 Improving species protection

In Peninsular Malaysia, for almost 30 years since 1972, the DWNP enforced the Protection of Wildlife Act 1972 as the main protective legal framework on wildlife species. The Protection of Wildlife Act 1972 was repealed and replaced by the Wildlife Conservation Act 2010 which came into force in 2011. The new Act contains significantly stricter provisions on species protection by adding species to the protective status and alleviating the protection of a number of species. In relation to enforcement of wildlife offences, the new Act provides for heftier penalties by way of significantly higher fines as well as mandatory prison sentences for serious crimes. For example, some fines have gone up by almost 33 times for certain offences.

The Act also provides for "presumptions under the law". A case in point is the use of snares for hunting purposes. Simply by being in possession of them (snares), the presumption under the law is that there was the intention to hunt, trap and/or kill wildlife which is punishable by a fine of up to RM100,000 and a prison term of up to three (3) years or both. There is also the presumption now that if any wildlife or any part or derivative or any wildlife or snare is found on any premises, the 'occupier' of the premises is presumed to be in possession of the above. Any person who sells any item which contains or claims to contain any derivative of a Totally Protected wildlife will now be subjected to penalties if found guilty. Using the presumptive evidence clause, the burden to prove that an item/thing does not contain derivatives of a Totally Protected wildlife lies with the offender.

The Act also provides for more punitive measures. For example, any person who has been convicted of an offence under the Act or any of its subsidiary legislation may be barred from holding any license, permit or special permit for a period not exceeding five (5) years from the date proceedings in respect of the conviction concludes.

Another significant change made under the new Act relates to the power to compound offences under the previous Act. As a result, certain offences such as failure to obtain prerequisite special permits in relation to Totally Protected species, the female or the immature of a Totally Protected species will result in prosecution of the offence rather than an offer to compound the offence through a fine. Between in 2011 and 2012, 13% of wildlife cases were prosecuted in court, due to the removal of the prerogative to compound offences being repealed.

4.3.2 The Establishment of Environmental Courts – Improving judicial oversight in environmental cases:

In January 2012, The Honourable Tan Sri Arifin Bin Zakaria, the Chief Justice of Malaysia at the Opening of the Legal Year 2012, stated that Environmental Courts would be established. In less than a year from the time the announcement was made, a Practice Direction was issued to courts across the country where it follows, that effective September 2012, all Magistrate and Sessions Courts are to prioritise environmental cases and must dispense with such cases within 6 months of the accused being first charged in court. The vision for such a court is to address primarily the need for swift adjudication of environmental cases. Under the Practice Direction, almost 38 pieces of legislation will come under the purview of the Environmental Court.

The paragraphs below highlights some key legislations and a number of prescriptions contained within these various Acts that will now be considered coming under the jurisdiction of the Environmental Court:-

- **The International Trade in Endangered Species Act 2008** - provisions under the Act coming within the Environmental Court range from offences dealing with import and export permits, possession of schedule species under the Act, breeding of or propagation of scheduled species, etc.
- **The Fisheries Act 1985**- provisions under this Act coming within the Environmental Court's jurisdiction ranges from offences involving intrusion of foreign fishing vessels into Malaysian waters, fishing with explosives or poisons, the taking of aquatic mammals or turtles from Malaysian fisheries waters etc. Currently this Act is being revised and updated.
- **The Wildlife Conservation Act 2010**- having the most number of provisions coming under the purview of the Environmental Court, they related to offences ranging from licensing requirements, prohibition of certain acts within wildlife sanctuaries and reserves, hunting, possessing, dealing or keeping of wildlife without lawful authority, the disturbing of salt licks and various other offences involving cruelty to wildlife.
- **The Environmental Quality Act 1974**- the provisions now within the jurisdiction of the Environmental Court mostly relate directly to the pollution issues. These apply to chiefly, restrictions in relation to pollution to soil, inland waters, discharge into Malaysian waters, prohibitions against open burning and violations of conditions attached to Environmental Impact Assessments.
- **The National Forestry Act 1984**- provisions falling under the purview of the new court involve provisions relating to the taking of forest produce from PRFs illegally, unlawful possession of forest produce, entry in closed forest areas and other forest resources related offences. This Act is currently being revised and updated.

4.3.3 The Access to Biological Resources and Benefit Sharing Draft Legal Framework

Malaysia's rich biological heritage has huge potential to be explored for new wealth creation and to enhance the development of the nation in line with the NPBD 1998, the National Biotechnology Policy 2005 and the New Economic Model 2010. CBD provides recognition that biological diversity is the sovereign right of a nation as opposed to the view that biological resources are the common heritage of mankind. Thus, all nations have the full right over biological resources within their boundaries and can regulate the access to these resources.

In line with CBD and taking into account national priorities, the government has produced a draft national law on Access to Biological Resources and Benefit Sharing (ABS) which will regulate/operationalise the following aspects:-

- Malaysia's legal obligation to implement Article 15 and other relevant articles of the CBD;
- Ensure bio-prospecting initiatives are carried out with the Prior Informed Consent (PIC) of the authority in Malaysia;
- To avoid biopiracy where biological resources are accessed and extracted without permission and developed for commercialisation;
- Ensure necessary agreements are entered into between the bio-prospector and the authority in Malaysia so that benefits are fairly and equitably shared; and
- To recognise the rights of indigenous and local communities with respect to their traditional knowledge associated with biological resources.

The legal framework provides for a number of key provisions that would facilitate the implementation of the principles of ABS among others:

- the appointment of Competent Authorities;
- the establishment of an advisory committee/body as relevant and appropriate;
- regulating issues relating to access to biological resources and/or traditional knowledge associated with biological resources for the purpose of research and development as well as commercial or potential commercial purposes;
- provision in relation to benefit sharing agreements;
- requirement for PIC and Mutually Agreed Terms etc.; and
- the establishment of measures for the purpose of monitoring and tracking of the utilisation of biological resources or traditional knowledge associated with biological resources.

4.3.4 The Amendments to the Environmental Quality Act 1974

In 2012, the Environmental Quality Act which functions as the main legal framework for the prevention of pollution as well as impacts from development activities was amended with a view

to provide the Act with stronger enforcement related prescriptions. The Department of Environment (DOE) which is under the purview of the NRE, administer and enforce the Act.

Under the Act, subsidiary legislation is passed containing a range of regulations that deal with multiple sector-based issues. The amendments covered a number of key aspects that include:-

- Providing the Director General of the DOE with powers to issue stop work or prohibition orders in relation to prescribed activities. Under the Act, an EIA is required to be carried out if a proposed activity is defined under the Act as a prescribed activity under the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987. With the new amendments, the Director General is now empowered to issue these stop work orders if a prescribe activity violates any conditions attached to the approval of an EIA report or in the opinion of the Director General, the activity is carried out in a manner that is likely to cause environmental damage.
- As a consequence of any violation of the order made by the Director General, a significant penalty is now prescribed. Any person guilty of contravening any orders issued shall be fined a sum not exceeding RM500, 000 or to a term of imprisonment not exceeding 5 years or both.
- In order to further enhance the powers of the Director General, the Act provides the Director General powers that are akin to police powers in relation to investigation and arrest.

4.4 National Policies related to Biodiversity, Natural Resources and the Environment

Since the submission of the last report, Malaysia has developed a number of new national policies pertaining to biodiversity, natural resources and the environment. These policies are highlighted accompanied by a summary of its main objectives and strategic actions.

4.4.1 The National Policy on Climate Change

The Policy was adopted in November 2009 and thereby provided a crucial recognition to climate change issues at the national level. It serves as the framework mainly to mobilize and guide various government agencies, industries, communities as well as all other stakeholders towards addressing the challenges of climate change in a concerted and holistic manner. The emphasis placed within the policy is mainly to strengthen the capacity of the country in relation to climate change vulnerability and also towards promoting various mitigation responses to climate change impacts. The objectives of the policy include:

- Mainstreaming climate change through wise management of resources and enhanced environmental conservation resulting in strengthened economic competitiveness and improved quality of life;
- The integration of responses into national policies, plans and programmes to strengthen the resilience of development from arising and potential impacts of climate change; and
- Strengthening of institutional and implementation capacity to better harness opportunities to reduce negative impacts of climate change.

The Policy aims to guide climate related responses and seeks to compliment all other existing national policies across all sectors. It provides pathways towards integrating climate change aspects. The policy contains a number of key strategic thrusts that guide the national response. They include among others:-

- To institute measures that would make development climate-resilient through a low carbon economy that would enhance global competitiveness and attain socio economic growth that is environmentally sustainable;
- To support climate-resilient development and investment including industrial development in pursuit of sustainable socio-economic growth;
- Adopt balanced adaptation and mitigation measures to strengthen environmental conservation and promote sustainability of natural resources; and
- Consolidate the country's energy policy by incorporating management practices that enhances Renewable Energy and Energy Efficiency.

The policy further prescribes a number of key principles guiding the implementation the policy as well as identified key strategic thrusts within the policy.

Table 14: The main principles and strategies that guide the implementation of the National Policy on Climate Change

Principles	Strategic Thrusts
1. Development on a Sustainable Path	1. Facilitate the harmonisation of existing policies to address climate change adaptation and mitigation in a balanced manner. 2. Institute measures to make development climate-resilient through low carbon economy to enhance global competitiveness and attain environmentally sustainable socio-economic growth. 3. Support climate-resilient development and investment including industrial development in pursuit of sustainable socio-economic growth.
2. Conservation of Environment and Natural Resources	1. Adopt balanced adaptation and mitigation measures to strengthen environmental conservation and promote sustainability of natural resources. 2. Consolidate the energy policy incorporating management practices that enhances Renewable Energy and Energy Efficiency.

3. Coordinated Implementation	1. Institutionalise measures to integrate crosscutting issues in policies, plans, programmes and projects in order to increase resilience to climate change. 2. Support knowledge-based decision making through intensive climate related research and development and capacity building of human resources.
4. Effective Participation	1. Improve collaboration through efficient communication and coordination among all stakeholders for effective implementation of climate change responses. 2. Increase awareness and community participation to promote behavioral responses to climate change.
5. Common but Differentiated Responsibilities and Respective Capabilities	1. Strengthen involvement in international programmes on climate change based on the principle of common but differentiated responsibilities and respective capabilities

4.4.2 The National Water Resources Policy

The Tenth Malaysia Plan (2011-2015), which is the main five (5) year economic development plan for the country, stresses the need to have a water resources policy which will chart the future course for the water sector in Malaysia. The formulation of the National Water Resources Policy (NWRP) for Malaysia, endorsed by the Cabinet in July of 2012 is intended to act strategically towards ensuring that the demand for water by all user sectors is met in terms of quantity and quality for both man and nature. In this regard, the NWRP provides clear directions and strategies in water resources management to ensure water security as well as sustainability. Additionally, the NWRP is positioned to serve as a platform for the streamlining of practices and approaches for the preparation of water resources conservation plans involving all the states of Malaysia.

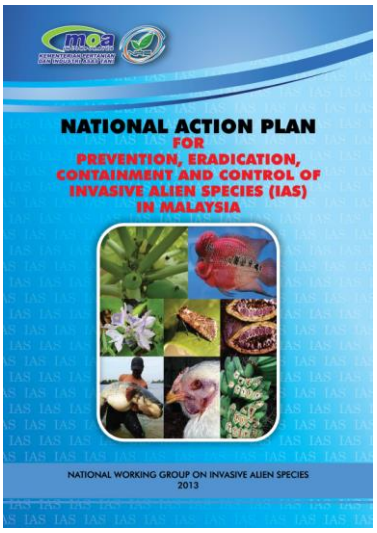
In considering Malaysia's long-term supply-demand profile for water, the policy outlines measures to ensure efficient and effective water resource management. Relevant policy actions by all sectors of the government that relate to and affect water as a whole is expected to be consolidated, complemented and implemented, guided by various strategic thrusts and actions to accompany them.

Table 15: Key core areas and the corresponding key thrusts in the National Water Resources Policy

Key Core Areas	Various Key Thrusts
1.Water Resources Security	• Water Resources Integrity • Water Intelligence • Use of Alternative Water Resources and Sources • Water Related Disaster Risk Reduction • Preparedness and Response

2.Water Resources Sustainability	• Criteria for Water Resources Characterisation • Conservation and Protection of Water • Resources and Bodies, both Natural and Artificial
3. Partnerships	• Stakeholder Inclusiveness and Engagement • Shared Water Resources Governance
4.Capacity Building and Awareness	• Various Capacity Building Initiatives

4.4.3 National Action Plan for the Prevention, Eradication, Containment and Control of Invasive Alien Species (IAS) in Malaysia



The finalisation of this Plan is one of the Government's latest efforts to prevent the introduction, control or eradicate those alien species which threaten ecosystems, habitats and species.

IAS impacts in Malaysia are felt in relevant sectors such as agriculture, aquaculture and livestock rearing. In an effort to promote actions to counter and mitigate the impacts of IAS, the Government of Malaysia adopted the National Action Plan for Prevention, Eradication, Containment and Control of Invasive Alien Species (IAS). The overall objectives of the National Action Plan are:

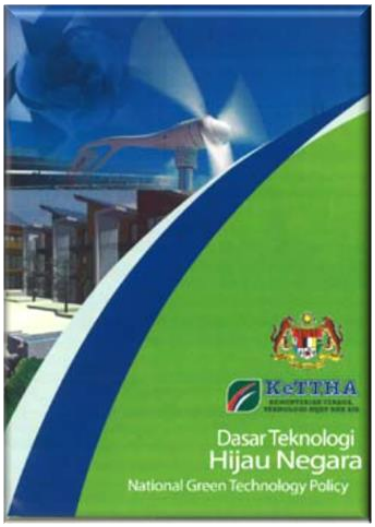
- To identify gaps in the existing legislation, regulation, guidelines and procedures to counteract the introduction and establishment of IAS;
- To develop a country wide invasive species list and study the causes leading to the introduction of alien species and the impact of such introduction on biological diversity;
- To gather information and conduct research to address the problem related to IAS and towards the development of scientific-based strategies as wells as through rapid response strategies in relation to the prevention, eradication, containment and control of those IAS that threaten ecosystems;
- To intensify relevant capacity building activities that would lead to the effective implementation of the Plan; and
- To promote awareness of IAS issues among senior level officers, policy makers, community stakeholders, industry as well as the general public.

The activities planned in relation to the objectives of the Plan have already commenced and run up to 2018. A number of these activities include workshops in relation to the preparation of the list of top IAS in the country, preparation of working papers in relation to research and development on IAS and well as the distribution of posters and pamphlets for IAS awareness raising amongst the public.

4.4.4 National Green Technology Policy

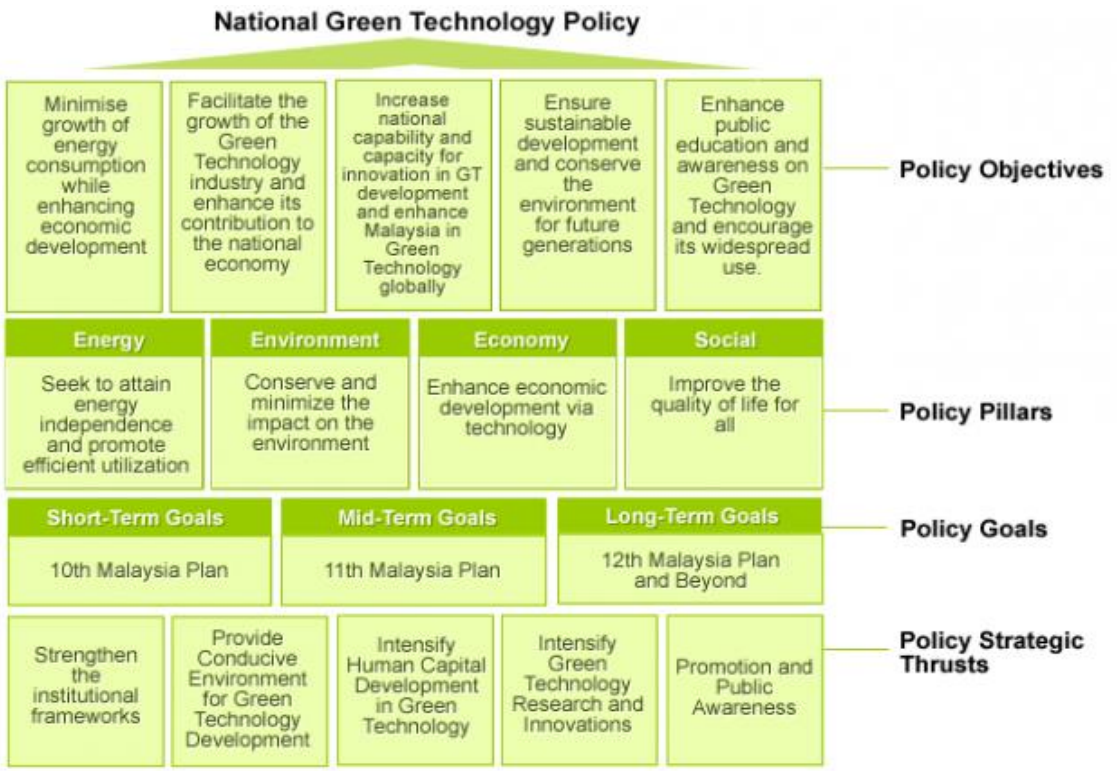
In the Malaysian policy context, Green Technology (GT) is defined as the "development and application of products, equipment and systems used to conserve the natural environment and resources, which minimizes and reduces the negative impact of human activities".

The main policy statement for the National Green Technology Policy is GT shall act as the driver that accelerates the national economy and at the same time promote sustainable development. Several short term goals for GT have been identified which include goals such as:-



- Increasing public awareness and commitment towards the adoption and application of GT;
- Ensuring widespread availability and recognition of GT in relation to products, appliances, equipment and systems, etc within the local market;
- Increasing foreign and domestic direct investments in GT; and
- Increasing research development and innovation of GT by local universities and research institutions.

Image 16: The overall Green Technology Policy Famework for Malaysia.



Post the passing of the Policy, Malaysia proceeded to establish the National Green Technology and Climate Change Council and the Malaysia Green Technology Corporation (also known as GreenTech Malaysia) as the institutional structures that would support policy implementation.

- The Green Tech Malaysia is restructured from the former Malaysian Energy Centre to compliment green technology efforts after the adoption of the policy. It also functions to promote, coordinate and collaborate on various green tehnology activities.

From an investment standpoint, a total of US$0.46 billion has been made available for soft loans for users and producers of green technology. This is known as the Green Technology Financing Scheme (GTFS), which primarily acts as a fund. Funding will be basically provided for any project that qualifies and meets green technology project criteria under the GTFS program.

4.4.5 The National Action Plan for Peatlands

The National Action Plan for Peatlands (NAPP) was released in May 2011 by NRE. The NAPP was formulated through an open and transparent consultative process with all relevant stakeholders. The goal and objectives of the National Action Plan are as follows:

Goal: To sustainably manage peatlands in Malaysia in an integrated manner to conserve resources, prevent degradation and fires, and generate benefits for current and future generations.

Objective 1: Enhance knowledge, awareness and capacity for sustainable peatlands management and development;

Objective 2: Conserve peatlands resources and reduce peatland degradation and fires;

Objective 3: Promote the sustainable and integrated management of peatlands;and

Objective 4: Ensure effective multi-stakeholder cooperation.

The plan also encapsulates a number of focal areas in relation to peatland conservation, management and protection and contains a number of national objectives.

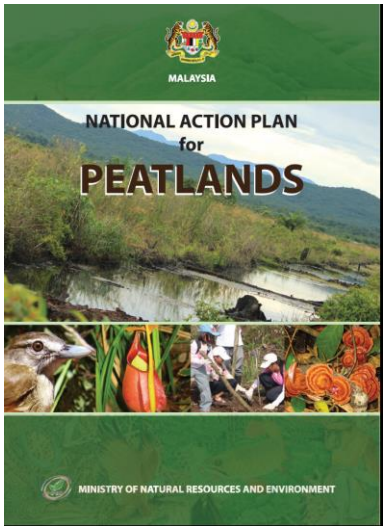
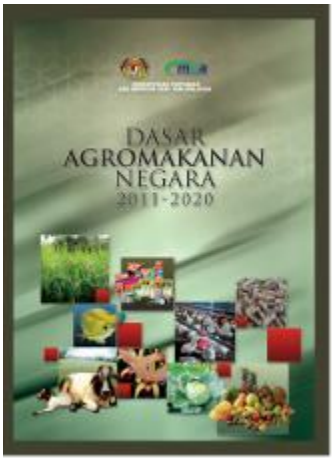


Table 16 : Key National Focal Areas and Activities Stipulated under the NAPP

NATIONAL ACTION PLAN FOR PEATLAND MANAGEMENT IN MALAYSIA	
FOCAL AREA	**KEY ACTIVITIES**
1 Inventory and Assessment	• Determine the extent and update status of resources of peatland areas in Malaysia • Improve knowledge and understanding of peatland management • Monitor and evaluate peatland status and management
2. Research	• Undertake priority research activities
3. Awareness and Capacity Building	• Enhance public awareness of peatland management • Strengthen capacity for sustainable peatland management
4. Information Sharing	• Strengthen mechanism for information storage and exchange
5. Policies and Legislation	• Review and strengthen policies, legislations and guidelines and their Implementation
6. Fire Prevention, Control and Monitoring	• Reduce Occurrences of Peat Fires and Associated Haze
7. Conservation of Peatland Biodiversity	• Promote conservation of peatland biodiversity and ecosystem functions • Sustainably manage species important for local livelihoods
8.Focal Area Integrated Management of Peatland	• Promote integrated management of peatlands • Promote enhanced water management • Enhance the sustainable uses of forest resources • Increase productivity and sustainability of agriculture in peatland • Improve standard of living of communities depending on peatland areas • Develop and promote options for recreation and tourism uses
9.Focal Area Establishment and Promotion of Demonstration Sites for Peatland	• Promote best management practices through establishment of demonstration sites
10.Focal Area Restoration & Rehabilitation	• Restoration of degraded peatlands
11.Focal Area Peatlands and Climate Change	• Assess impacts of climate change and develop adaptation measures
12.Focal Area Regional Cooperation	• Support the implementation of the APMS
13.Focal Area Financing of the Initiative	• Ensure adequate allocation of financial resources

4.4.6 The National Agro Food Policy: Mainstreaming Biodiversity into the Agricultural Sector

The National Agro Food Policy was adopted on 28 September 2011 in place of the National Agriculture Policy which ceased in 2010. The objectives of National Agro Food Policy, 2011-2020 are as the follows:



- To ensure adequate food supply and food safety;
- To develop agrofood industry into a competitive and sustainable industry; and
- To increase the income level of agricultural entrepreneurs.

Additionally, the Policy also recognises the importance of biodiversity and has highlighted sustainable agriculture development as one of the key thrusts under the policy. Efforts that will be pursued under the policy to ensure the sustainable development of the agrofood sector in Malaysia includes:-

- The use of agricultural land will be optimised due to limited area available for food production activities. This will be implemented through intercropping within oil palm replanting areas and the integration of cattle and goats with mature oil palm areas will be encouraged.
- Adequate water supply and efficient water management will be enhanced to ensure that agricultural productivity can be maximised such as through utilisation of underground water resources and rain water;
- Integration of Sustainable Practices and Product Tracking Systems as Part of the Value Chain and Expand Sustainable Agricultural Practices which includes good agricultural, animal husbandry and aquaculture practices will be expanded particularly in commercial farms and will be required in Permanent Food Production Parks and Aquaculture Industrial Zones;
- The use of ancillary materials and wastes will be optimised to create a sustainable agricultural industry with zero waste.
- Intensify efforts to promote the use of ancillary materials such as straw and rice husks to produce by-products.
- Develop an Efficient and Sustainable Capture Fisheries Industry- in order to enhance the sustainable management of fishery resources through conservation efforts, initiatives include the use of environmentally friendly fishing equipment, ecosystem-based resource management, development of artificial reefs, fish aggregating devices and refugia and the gazettal of protected and seasonal fishing areas;
- Placing emphasis on compliance with international instruments in the management of fishery resources such as the FAO Code of Conduct for Responsible Fisheries 1995, Agreement on Port States Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IUU Fishing) and EC Regulation 1005/2008;

- Creation of fifteen (15) sanctuaries in Peninsular Malaysia for the conservation of high value commercial species threatened with extinction, such as kelah (*Tor tambroidesi*) and terubuk (*Tenualosa toli*);
- Expand community-based resource management in inland fisheries, such as the Tagal[75] system, from 392 to 700 Tagal along the major rivers in Sabah, and the introduction of the Tagang system to 100 areas in Sarawak by 2020; and
- Restructure the management of marine resources and expand the Community-Based Resource Management programme including the creation of twenty (20) Fisheries Ecosystem Management Communities.

In addition to the sustainable agriculture development components under the 10 year policy, other sustainable agriculture based efforts have been initiated including the introduction of Good Agricultural Practices (GAP) to be implemented by farmers. The Malaysian Good Agricultural Practices (MyGAP) initiative was launched in 2013. It is essentially a rebranding and consolidation exercise of three schemes namely the Malaysian Farm Certification Scheme for Good Agricultural Practices, the Livestock Farm Practices Scheme and the Malaysian Aquaculture Farm Certification Scheme. It is a comprehensive certification scheme for agricultural, aquaculture and livestock sectors which is implemented based on the Malaysian Standard (MS).

The Malaysian Organic Scheme (MOS) is a certification programme to certify farms that are operated using organic methods according to the criteria and guidelines stipulated within the Malaysian Organic Scheme Standard. The Standard is based on the Malaysian Standard entitled 'MS1529:2001 The Production, Processing, Labelling and Marketing of Plant Based Organically Produced Foods'. It also covers the conditions and criteria regulated by law in relation to impacts to environment, food safety and as well as employee health and safety. Benefits derived from such a certification can be summarised as follows:

- Yield produced from farms that have been certified can be labelled as an organic product and have the right to use the Malaysian Organic label on these products.
- Consumers are provided the assurance that the products purchased are truly organic and do not contain unwanted chemical residues as the product has been endorsed as being in compliance to the MOS.
- As the use of chemical fertiliser and pesticide are prohibited under the organic farming scheme, it directly translates to the fact that no contamination to the environment or the possibility of poisoning among manufacturers or workers has occurred.

[75] Tagal system is the local colloquial for Community-based fisheries resource management system in Sabah. In Sarawak its equivalent is known as the Tagang system.

5. PART THREE: PROGRESS TOWARDS THE 2015 AND 2020 AICHI BIODIVERSITY TARGETS

5.1 Background to Part Three

The second generation of the National Biodiversity Strategies and Action Plan (NBSAP) for Malaysia is currently being prepared in light of the CBD Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets adopted in 2010. The revision will address gaps in the NPBD 1998; as identified by stakeholders during the National Capacity Self-Assessment (NCSA) project in 2008. The NPBD functions as the NBSAP for Malaysia. Through this revision, national targets on biodiversity will be developed, implementing agencies will be determined and a resource mobilisation plan will be prepared.

Malaysia has begun formal work on the updating of the current NBSAP with intention of incorporating the Aichi Biodiversity Targets as part of its national targets. The Malaysian Government together with the assistance of the UNDP/GEF project have embarked on a project entitled "National Biodiversity Planning to Support the Implementation of the CBD 2011 – 2020 Strategic Plan in Malaysia" for this purpose.

This project contributes significantly to Malaysia's efforts towards implementing the CBD Strategic Plan 2011-2020 at the national level. The project builds on the current status and achievements of Malaysia with respect to biodiversity. It aims to integrate Malaysia's obligations under the CBD into its national development and sectoral planning frameworks through a renewed and more participative biodiversity planning. This process is expected to produce measurable targets for biodiversity conservation and its sustainable use. It will equally ensure that the value of ecosystem services is taken into consideration in the process.

The project is expected to achieve its objectives through the implementation of three (3) main components:

- A participative stocktaking exercise on biodiversity planning processes in Malaysia and the setting of national biodiversity targets in response to the global Aichi Biodiversity Targets;
- The integration of newer aspects of the CBD Strategic Plan 2011-2020 into the updated NPBD i.e. mainstreaming efforts and the anchoring of implementation frameworks into national development frameworks and valuing ecosystem services; and
- The identification of national frameworks for resource mobilisation for biodiversity conservation, protection and management.

Since the last reporting period, Malaysia has made progress in the development of biodiversity related policies, growth in legislative frameworks and the undertaking of biodiversity related initiatives. It is noted that NPBD 1998 does not specify concrete national biodiversity targets, indicators and baseline. This aspect will be incorporate into the revision of the first generation NBSAP as explained above. Therefore, Malaysia's approach in reporting under Part Three will be as follows:

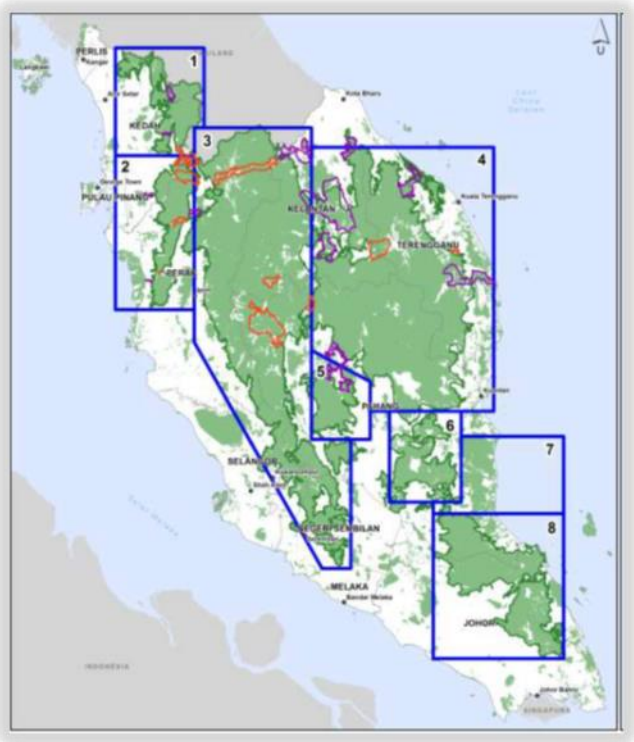
- To highlight additional key initiatives that will deliver against the strategic goals and relevant Aichi Biodiversity Targets. As such, this report will highlight the Central Forest Spine Master Plan (CFS MP) Initiative, the Heart of Borneo Initiative (HoB), and the Coral Triangle Initiative (CTI);
- To provide a summary on up and coming or newly in place national policy initiatives that would, when operationalised fully, contribute towards key Aichi Biodiversity Targets. These include the National Sustainable Production and Consumption Blueprint and the recently launched National Strategies and Action Plans on Agricultural Biodiversity Conservation and Sustainable Utilisation; and
- Efforts on Traditional Knowledge (TK).

5.2 The Central Forest Spine Master Plan

The Central Forest Spine of Peninsular Malaysia is composed of four (4) main forest complexes, and an important natural landscape of Malaysia. The complex of forest supplies 90% of the population's water supply through its numerous watersheds. Additionally the CFS also provides other services such as climate regulation, soil protection, and carbon storage and sequestration. The CFS also harbours the remaining population of Malayan tigers within its forests.

The CFS runs down the length of Peninsular Malaysia, straddling eight (8) states and comprises of four (4) main forest complexes i.e. Banjaran Titiwangsa – Banjaran Bintang –Banjaran Nakawan; Taman Negara – Banjaran Timur; South-East Pahang, Chini and Bera Wetlands; and Endau-Rompin National Park – Kluang Wildlife Reserve. This covers an area of approximately 5.3 million hectares; over 40% of the total terrestrial area and over 91% of forest areas in Peninsular Malaysia. Roughly 80% of the CFS areas are PRFs, comprising mainly of production forests and protection forests. Of the remaining 20%, 12.4% consists of national and state parks, and the remainder is comprised of cultivated land, under both state and private tenure, including plantations of oil palm, rubber and planted forest. Forest fragmentation is identified as a major threat to the conservation and maintenance of biodiversity within the CFS.

The NPP-1 has recognised that the integral key to maintaining biodiversity and ecosystem functioning threatened by fragmentation is to ensure that within the CFS there are ecological linkages and corridors that would ensure connectivity between these fragmented forests. This recognition has led the Malaysian Government to embark on the development of a CFS MP with the objective of re-establishing, maintaining and restoring forest connectivity within the CFS area.



Map 19: Ecological Linkages in the 8 Main Forest Complexes Identified in the CFS Master Plan (2010). Red indicate primary linkages; and purple indicate secondary linkages

The CFS MP uses the term "ecological linkage" for connectivity between forest complexes and identifies two types, Primary (PL) and Secondary linkages (SL).

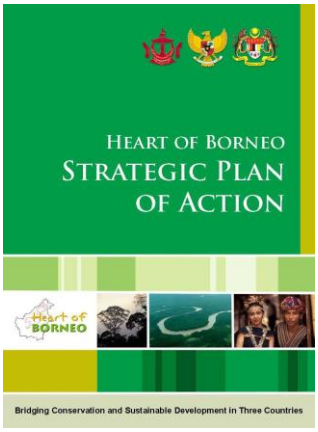
- **Primary Linkages (PL)** are identified in the CFS MP as linear corridors to connect two forest "islands" where it is deemed to be "crucial to re-establish forest connectivity in order to achieve the main Central Forest Spine link", to allow the movement of wildlife, genetic resources and ecological functions. These areas are located between the most important blocks of forest; usually in narrow stretches where non-forest land use is still minimal. Most PLs are deemed to require major interventions such as land acquisition and the construction of viaducts along highways.
- **Secondary Linkages (SL)** is described as complementary to PLs, to be established where the land is more degraded but where it is still important to maintain a degree of connectivity. SLs are recommended to take the form of stepping stones, i.e. patches of suitable habitat, and are usually designed to follow riparian corridors and to allow the movement of smaller mammals, birds and insects; however, large mammals may still take advantage of these linkages.

To date, the FDPM have undertaken various initiatives under the CFS MP as follows[76]:-

- The State Government of Perak has gazetted a total of 18,866 hectares at the ecological corridor at the PL2 i.e. previous State Land within the Belum Temengor forest has been gazzeted now as a PRF. This gazetted area has been declared as the Amanjaya Forest Reserve. The Government of Perak has also embarked on an Amanjaya Tree Planting Programme with a view to encourage the involvement of various stakeholders and related agencies in rehabilitation activities at ecological corridor PL2;
- The State Government of Kedah has gazetted a total of 8,119 hectares as the Saiong Forest Reserve at Baling, Kedah. Out of 8,119 hectares, there is total of 4,398 hectares contained within the Secondary Link ecological corridor i.e. the Ulu Muda Forest Reserve – Pedu Forest Reserve – Chebar Forest Reserve;
- The Federal Government has approved an allocation of US$20 million in April 2011 for the implementation of the "Gerik Central Forest Spine Project" over the period 2012-2015 especially for the construction of a viaduct at the PL2, i.e. at Belum Temengor, Gerik in the State of Perak.
- The establishment of three (3) viaducts costing US$8 million have been constructed at the highway in Sungai Deka, in the state of Terengganu situated at the PL7; and
- The establishment of three viaducts have started since 2010 at the Sungai Yu, Pahang (PL1) and are expected to be completed by the year 2015. The establishment cost of these viaducts is approximately US$25 million.

This Master Plan, with its overall framework, management criteria, development guidelines and conservation aspects is expected to contribute to Aichi Biodiversity Targets 5, 7, 11, 12 and 14 respectively.

5.3 The Heart of Borneo Initiative



The Heart of Borneo Initiative is a voluntary transboundary cooperation between Malaysia, Indonesia and Brunei, seated upon sustainable development foundations aimed at conserving and managing the contiguous tropical forests in the island of Borneo. The Declaration that endorsed the Initiatives was signed by the three governments in 2007. The HoB area covers approximately 200,000 km^2 of ecologically inter-connected rainforest in the provinces of Indonesia (Kalimantan), Malaysia, (represented by states of Sabah and Sarawak amounting to 61,000 km^2), and Brunei Darussalam. The total approximate area for the HoB is around 30% of the island's land area.[78]

[76] Forestry Department Peninsular Malaysia
[78] Heart of Borneo Strategic Plan of Action

Following the Declaration in 2007, during the 2nd HoB Trilateral Meeting held in 2008, Brunei Darussalam, Indonesia and Malaysia agreed on five (5) directional programmes and 21 accompanying actions that were later embodied in the HoB Strategic Plan of Action.

The 5 programmes consist of the following[79]:

- **Transboundary Management**- The objective of this programme is to address issues related to management of natural resources and the socio-economic welfare of local people on the border areas.
- **Protected Areas Management**- The objective of this programme is to enhance and promote effective management of protected areas within the HoB area. The emphasis is placed on those areas that are situated on the common border, in order to conserve and maintain forest biodiversity and the ecological linkages.
- **Sustainable Natural Resource Management**- The objective of this programme is to manage the natural resources outside the protected areas network through the development and implementation of sustainable land use practices.
- **Ecotourism Development**- The objective of this programme is to work towards the recognition and protection of the values of special natural and cultural places or sites within the HoB area.
- **Capacity Building**- The objective here being to ensure the effective implementation of HoB initiative at all levels, both in public and private sectors and the local community.

Under the Malaysian chapter, Sabah and Sarawak implement the HoB through state level project documents that would implement the HoB goals and programmes.

In Sabah, there is now a new Strategic Plan of Action 2014-2020, replacing the first Strategic Action Plan for the state which ceased in 2012. During the period of the first Strategic Plan for the state that ran from 2008-2012, many notable state efforts have contributed towards the implementation of the HoB goals. They include amongst others[80]:

- Additional Protected Areas that have increased connectivity between forests and protected areas in the central parts of the State;
- Numerous field expeditions were conducted to increase knowledge on biodiversity within protected and non-protected areas such as (the Telupid complex, Imbak Canyon and Maliau Basin as well as the Kinabalu and Crocker Ranges). These expeditions have led to the discovery of new species of plants and animals, some of them endemic to Borneo (*Shorea acuminatissima, Dyospiros fusiformis*, etc.);
- In order to provide clear and practical solutions towards the protection and conservation of the state's iconic species, state level action plans for the orang utan, Bornean elephant and Sumatran rhino were developed;

[79] Ibid
[80] Strategic Plan of Action (Sabah), The Heart of Borneo Initiative (2014-2020)

- Reforestation and restoration efforts aimed at restoring forest functionality over 150,000 hectares of the most degraded areas in the state were undertaken by many stakeholders;
- The empowerment of communities in the management of local natural resources; through the promotion of Indigenous Community and Conserved Areas utilising the Tagal System;
- The development of a sustainable livelihood strategies and guidelines for Best Management Practices for farming with the communities of the Liwagu catchment in Kundasang. This was achieved through a multi-agency initiative involving the Department of Agriculture (DOA), Department of Drainage and Irrigation (DID), Town Planning and the Pesticide Board; and
- The launching of the "Sabah Biodiversity Clearing House Mechanism" (SaBCHM) that aims to provide a central data bank for the state's biodiversity records under the Sabah Biodiversity Centre. The SaBCHM is presently under development involving multiple agencies.

Under the revised Strategic Plans that will run from 2014-2020, the State remains guided by the 5 directional programmes prescribed under the tri-national HoB Strategic Plan of Action. Under these 5 programmes, Sabah has identified a suite of projects and activities that would support further implementation of key actions under each programme.

The HoB Initiative in Sarawak is also implemented through a Strategic Plan of Action by the State with the Forest Department of Sarawak being the main implementer. In Sarawak the HoB covers an area of 2.1 million hectares over a continuous block along the state's border with Sabah, Brunei and Kalimantan. It comprises 3 main regions namely:-

- The northern Region-Miri and Limbang Divisions;
- The Central region comprising Kapit, and the Belaga District of the Kapit Division;
- The Southern Region – covering Sarekei, Sri Aman, Sibu Division as well as the Song District of the Kapit Division.

Out of 2.1 million hectares of forested land that is the HoB in Sarawak, about 1.6 million hectares are occupied by 15 Permanent Forest Estates (PFEs). Totally Protected Areas (TPAs) meanwhile occupies about 526,652 hectares while the rest are made up of agriculture plantations, native customary lands and other alienated land.[82]

The Sarawak Strategic Plan on HoB encompasses five (5) pillars comprising[83]

- **Sustainable Forest Management**- Under this pillar the state continues to establish Permanent Forest Estates (PFEs) and practice sustainable forest management. This includes the implementation of Reduced Impact logging (RIL) practices which is crucial towards sustainably managing PFEs. RIL ensures that harvesting is done in a manner that results in lower level of damage to residual tree stocks, soil and water.

[82] Forest Department Sarawak http://www.forestry.sarawak.gov.my/page_print.php?id=993
[83] Commitment on Sustainable Development and Conservation, Heart of Borneo Sarawak, Forest Department Sarawak Publication

- **Ecotourism based on Culture, Adventure and Nature**- Under this pillar the state pursues community based eco-tourism initiatives such as the Ulu Ai Sustainable Tourism Initiative as well as undertaken a number of capacity building and awareness building initiatives.
- **Conservation of Biological Diversity**- To be achieved primarily through the establishment of transboundary biodiversity conservation network areas as well as research and development.
- **Sustainable Agriculture and Land Use**- The focus here is to improve the livelihoods of local communities, ensure productivity and income without compromising sustainability.
- **Community Based/Rural Poverty Eradication Programme**- Under this pillar the Forest Department Sarawak, has led initiatives that seek to empower local communities through the development of various community based projects, conservation of freshwater fisheries as well as the promotion of cultural aspects. Other community projects include the development of marketing skills for community based/derived products, community high impact project on Agarwood and other medicinal plants as well as the construction of micro hydro power for energy.

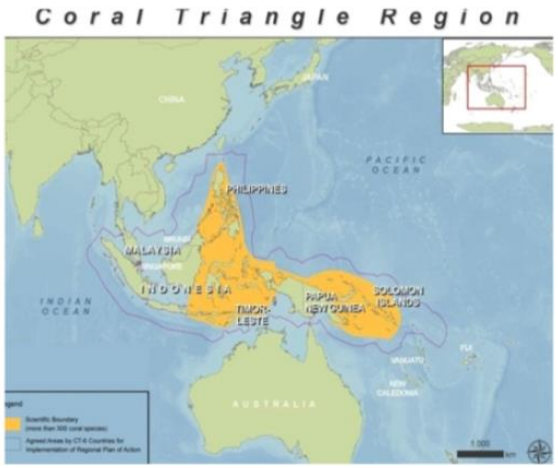
As part of the HoB initiative and acting as a contributing element towards the Aichi Biodiversity Targets, the State Government of Sarawak will expand and establish new national parks and wildlife sanctuaries within the HoB. In tandem, the increase of PAs involves the enhancing of connectivity in order to preserve the ecological integrity and enhance the flow of ecosystem as well as facilitate gene flow.

Specifically, due to the range of programmes and the overall implementation of the HoB in these two states, it contributes and continues to progress towards Aichi Biodiversity Targets 5, 7, 11, 12 and 14 respectively.

5.4 The Coral Triangle Initiative-Coral Reefs, Fisheries and Food Security (CTI-CFF)

CORAL TRIANGLE INITIATIVE
ON CORAL REEFS, FISHERIES AND FOOD SECURITY

The Prime Minister of Malaysia, The Honourable Dato' Sri Mohd Najib bin Tun Haji Abdul Razak, at Coral Triangle Initiative Summit, Manado, Indonesia, 15 May 2009 said "Malaysia is very committed to ensuring that our marine ecosystem remains healthy so that this rich biodiversity can be enjoyed in perpetuity and sustainably utilized for wealth creation in line with our objective to be a fully developed nation by 2020". It is in that spirit that Malaysia became a part of the six (6) nations (CT6) Coral Triangle Initiative in 2009.



Using coral and reef fish diversity as the two major criteria, the boundaries of the Coral Triangle are defined as covering all or part of the exclusive economic zones of six (6) countries: Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands and Timor-Leste. These boundaries encompass only part of Malaysian waters i.e. Malaysian waters in the Sulu Sea and Sulawesi Sea that is premised mainly in the coasts of Sabah.

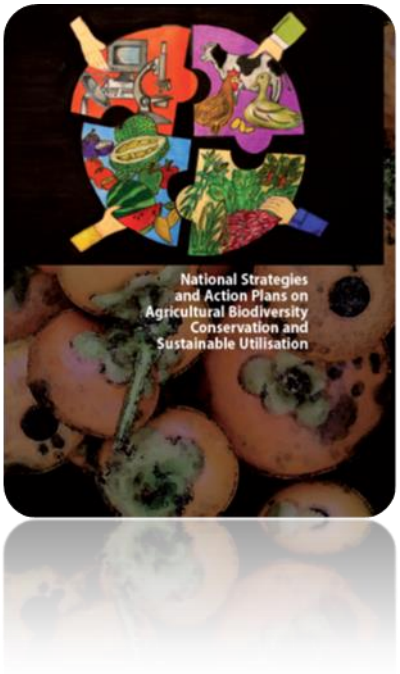
Malaysia has played an active role in the CTI Initiative whereby Malaysia facilitated the endorsement of the establishment of a Regional Secretariat by four (4) countries and the first CT6 country that ratified and deposited the Agreement on the Establishment of the Permanent Regional Secretariat of the CTI-CFF.

The Malaysian National Plan of Action (NPOA) for the CTI Initiative comprises a set of 12 guiding principles embodied into 133 Action Plans spread among the five (5) CTI goals. The goals are:-

- **GOAL 1 - Priority seascapes designated and effectively managed** -where the large-scale geographies are prioritized for investments and action, and where best practices are demonstrated and expanded. The time bound targets under the goal are to set priority seascapes across the Coral Triangle; designated to serve as the geographic focus of major investments and action during 2010 – 2020;
- **GOAL 2 - Ecosystem Approach to Management of Fisheries (EAFM) and Other Marine Resources Fully Applied**- under this goal, the target is by 2020 to have strong legislative, policy, and regulatory frameworks in place for achieving an Ecosystem Approach to Fisheries Management (EAFM). Under this goal the target is also by 2020 to improve income, livelihoods and food security in an increasingly significant number of coastal communities across the region through a new sustainable coastal fisheries and poverty reduction initiatives;
- **GOAL 3 - Marine Protected Areas (MPAs) established and effectively managed**- A key target to be achieved under this goal is to have region-wide coral triangle Marine Protected Areas Systems in place and fully functional;
- **GOAL 4 - Achieving Climate Change adaptation measures-** Key targets include the implementation of early action plans for climate change adaptation and establishment of networked National Centres of Excellence on climate change adaptation for marine and coastal environments; and
- **GOAL 5 - Improving status of threatened species** -key targets by 2020 include improved status for sharks, sea turtles, seabirds, marine mammals, corals, seagrass, and other identified threatened species.

It is in essence the implementation of these five goals that would contribute significantly to the Aichi Biodiversity Targets, chiefly targets 6, 10, 11 and 14 respectively.

5.5 National Strategies and Action Plans on Agricultural Biodiversity Conservation and Sustainable Utilisation



The National Strategies and Action Plans on Agricultural Biodiversity Conservation and Sustainable Utilisation was released in 2010 and revised in 2012.

This strategies and action plans seeks to infuse aspects of sustainable agriculture biodiversity utilisation and to ensure that the agricultural sector in Malaysia uses its biological resources in sustainable manner.

Aspects covered under the this document include:-

- Plant genetic resources for food and agriculture, including pasture and rangeland species and forest genetic resources of trees that are an integral part of farming systems;
- Animal genetic resources for food and agriculture, including fisheries as part of the farming system, and insect genetic resources; and
- Microbial and fungal genetic resources.

Additionally, various strategies, action plans and proposed activities on Plant Genetic Resources for Food and Agriculture (PGRFA) are prescribed through four (4) main components being the key themes identified under the Programmes of Work for agricultural biodiversity. These four (4) components are:-

- **Public Awareness** - To promote and encourage the understanding and participation by the public and institutions for effective conservation of PGRFA. To further this, PGRFA conservation and sustainable use will be incorporated into local training, education and public awareness activities.
- **Capacity Building** - To strengthen the institutional framework in relation to PGRFA research and development as well as build strong national programmes, information system and established networks for PGRFA. Additionally, it has been prescribed that there is a need to establish facilities and train trainers in ex situ conservation of PGRFA.
- **Research and Monitoring** –The promotion of the collection, description and the documentation of PGRFA. This will be carried out through surveys as well as inventories and *in-situ* inventory of farms. Furthermore, *ex-situ* conservation will be sustained and expanded through improved technologies and collection of more PGRFA.

- **Legal and Institutional Framework** – Malaysia, having acceded to the International Treaty on PGRFA (ITPGRFA) in 2003, is working towards strengthening the national policy on PGRFA conservation and the sustainable utilisation. This includes mainstreaming the treaty in the country.

The implementation of this policy will contribute towards Aichi Biodiversity Targets 1, 7, 10, 12 and 13 respectively.

5.6 The Up Coming National Sustainable Consumption and Production Blueprint

Changing the unsustainable consumption and production patterns is one of the major programme areas of the UN Agenda 21 that prescribes the strategic measures towards promoting sustainable development. Sustainable Consumption and Production (SCP) is a comprehensive cross-cutting concept, which aims to do "more and better with less," by reducing the resource use, degradation and pollution along the life cycle of goods and services, in order to enhance the quality of life for all. However, promoting sustainable consumption and production requires major shift in terms of consumers and producers behaviour to change and adapt sustainable practices.

The adoption of SCP practices in a more strategic way would play critical role in creating awareness among the society on the benefits of resource conservation and reducing wastage. To this end, with the collaboration of the European Union (EU), the Economic Planning Unit (EPU) of the Prime Minister's Department is undertaking a project titled "Sustainable Consumption and Production (SCP) Policy Support Malaysia" from 2012 to 2016. The project is aims at strengthening the SCP Policy and institutional framework of Malaysia, through the formulation of SCP Policy Blueprint and coordinated input to the 11th Malaysia Plan (2016 – 2020). As much as possible, the project is expected to build on and integrates the existing SCP related initiatives to mainstream SCP and streamline efforts related to SCP.

The project led by EPU involves relevant government ministries and agencies, industry and civil society. The project framework, including its four (4) major components or pillars is visualized in the figure below.

Image 17: The National Sustainable Consumption and Production Framework

Source: Economic Planning Unit

Once implemented, the Blueprint is expected to contribute significantly towards Aichi Biodiversity Target 4.

5.7 Efforts on Traditional Knowledge Documentation

Malaysia also has significant cultural diversity, comprising some 18 sub-ethnic *orang asli* (indigenous people) groups in Peninsular Malaysia, three (3) major ethnic and 30 sub-ethnic communities in Sabah; and 30 ethnic communities in Sarawak. As of November 2012, more than 800 species of medicinal and aromatic plants have been documented through consultation with indigenous peoples in Peninsular Malaysia and 760 plants used in Traditional Knowledge (TK) have been documented through consultation with indigenous peoples in Sarawak.

The proposed Access to Biological Resources and Benefit Sharing (ABS) draft legal framework will aid towards implementing Malaysia's commitment under the CBD. The draft regulatory framework aims to provide a more structured national approach in regulating access to biological resources and TK associated with biological resources by ensuring the fair and equitable sharing of benefits arising from their utilisation.

Image 18: The traditional knowledge of indigenous communities contributes to conservation of biodiversity. Source: MNS / K.S. Cheang

Sabah and Sarawak have already established state legal frameworks in relation to ABS in their respective States. The Sarawak Biodiversity Ordinance was first enacted in 1997 and revised in 2003 to address issues related to biodiversity including ABS and TK. The Sarawak Biodiversity Council was established in February 1998, followed by the establishment of the Sarawak Biodiversity Centre (SBC) in the same year to assist the Council with the implementation of the legislation.

The Sarawak Biodiversity Centre (Amendment) Ordinance 2003 mandated the Sarawak Biodiversity Centre (SBC) to among others, initiate intensive biotechnology based research and development on the state's biological resources, particularly those that have been utilised by indigenous communities, to authorize access to Sarawak's protected resources and to negotiate sharing of benefits derived therefrom, and to facilitate the documentation of the fast disappearing traditional knowledge of indigenous communities in relation to the utilisation of biological resources.

In 2004, Sarawak enacted the Sarawak Biodiversity Regulations to regulate access to biological resources which are declared by the Sarawak Biodiversity Council as protected resources and knowledge supplied by natives. SBC has then set up the Traditional Knowledge Documentation Programme to implement its third function over the period 2013-2015.

As at the end of year 2013, SBC has conducted its TK Documentation programme among 15 different indigenous communities, located in 72 locations throughout Sarawak. Of these, communities in 47 locations have begun to actively document their traditional knowledge.

These communities are also encouraged to establish their own community nurseries and gardens of useful plants. A community that has successfully turned this activity into an eco-tourism product is the Penan Community of Long Iman, (situated near Mulu National Park, a UNESCO World Heritage site). The community has devised a system where tourists pay a minimal fee to learn about the uses of useful plants in their garden, through a guided tour. The fee collected is channelled towards the maintenance of the garden and as a general community fund.

The Sabah Biodiversity Enactment was passed in the year 2000. It amongst other things provides the legal basis for ABS in Sabah. The Sabah Biodiversity Centre (SaBC) is in the process of enforcing this enactment pending the adoption of the subsidiary regulations to enable its full implementation.

Under the upcoming GEF funded project titled 'Developing and Implementing a National Access and Benefit Sharing Framework' which will be implemented between 2014 to 2017, will pave the way for the development of a national regulatory framework on ABS.

The passing of the ABS law and continued TK documentation efforts all around will also contribute significantly to Aichi Biodiversity Target 18.

6. LESSONS LEARNED FROM THE IMPLEMENTATION OF THE CONVENTION IN MALAYSIA

Biodiversity conservation and management in Malaysia overall have met with many successes particularly in the area of macro policy development, sector and issues based legislative frameworks that regulate many aspects of biodiversity conservation as well as institution structure that provides delivery and implementation of the nation's biodiversity agenda;

That said, there are several areas in which Malaysia recognises the need for improvement and effectiveness. It is here where the review of the NPBD 1998; as mentioned in aforesaid paragraphs, offers the opportunity to address some of the shortcomings.

i. The NPBD which was developed in 1998 does not prescribed for timeline by which certain objectives are to be met. The first generation NPBD for Malaysia was to function as a broad based and umbrella policy framework for the nation. Going forward, ongoing review of NPBD 1998 is expected to provide implementation timeline for critical biodiversity targets and action plans.
ii. The Policy does not delegate implementation duties to relevant agencies resulting in lack of ownership of some of the Policy's components. The updated NBSAP is expected to address this gap.
iii. Effective and strategic coordination across all level of governments can be further strengthened in order to implement the revised NBSAP more effectively.
iv. The application of economic instruments in biodiversity has not been fully capitalised for the integration of biodiversity values and ecosystems services into development planning and resource allocation. The current undertaking on biodiversity economic and financing initiatives by the government would build a sound business case for increased investment in the management of ecosystems and biodiversity; and mainstreaming into other key economic sectors.
v. The lack of cohesive and comprehensive monitoring mechanisms/indicators towards the NPBD has posed some challenges towards measuring actual progress in certain conservation areas.
vi. Malaysia recognises the need to step up efforts on awareness raising on the importance and significance of biodiversity conservation, protection and management across all levels of society in Malaysia.
vii. Biodiversity mainstreaming, being a complex approach towards biodiversity protection, conservation and management across all sectors would mean that integration of biodiversity aspects is not fully materialised. The Common Vision on Biodiversity provides the opportunity to fully utilise the various tools identified within the policy to mainstream biodiversity.

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APPENDIX 1

Information Concerning Reporting Party and Preparation Process of the 5th National Report

Reporting Party	**The Government of Malaysia**
NATIONAL FOCAL POINT	
Full name of the institution	Ministry of Natural Resources and Environment, Malaysia
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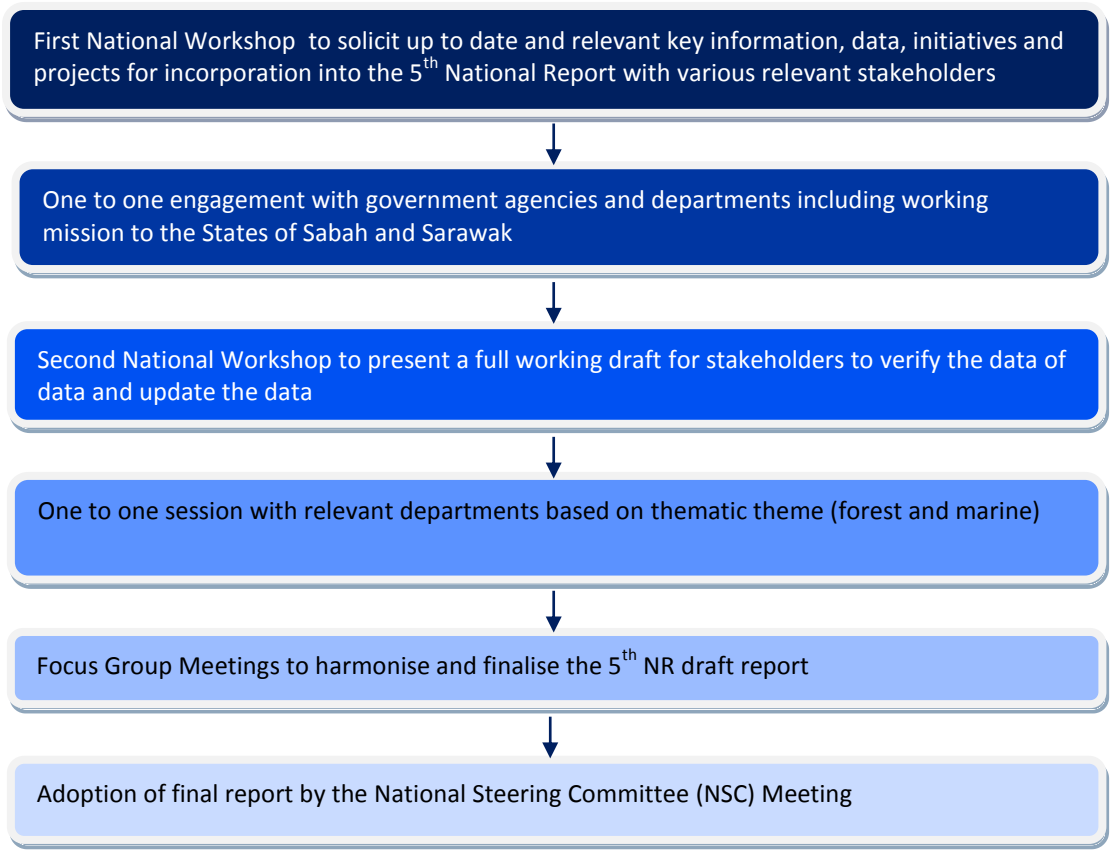
SUBMISSION OF REPORT	
Signature of officer responsible for submitting national report	
Date of submission	31 March 2014

Process for the Preparation of the 5th National Report

The 5th National Report to the CBD was developed with support from the 'National Biodiversity Planning to Support the Implementation of the CBD 2011-2020 Strategic Plan in Malaysia'. This project was undertaken by the Biodiversity and Forestry Management Division, under the Ministry of Natural Resources and Environment with the support of UNDP and financed by GEF.

The 5th National Report preparation project officially commenced in May of 2013 and ended on the 31st of March 2014. Various consultations and meetings with stakeholders had been conducted throughout the project period.

The consultation process and timelines



a) Active participatory consultations commenced with the organisation of a National Workshop by NRE with major stakeholders; consisting of government agencies, researchers, academic institutions and NGOs. The main objective of the national workshop was to solicit up to date and relevant key information, data, initiatives and projects for incorporation into the 5th National Report. Participants were, prior to the workshop provided with a copy of the CBD Guidelines in order to inform them of the structure of the report as well as the reporting requirements by CBD. At the workshop participants were provided with a detailed presentation and workshop matrices that complied with the structure of the guidelines. Post the workshop, participants were allocated a two week time period to revert with further and

more elaborate data related to biodiversity conservation efforts. This was viewed primarily as stock taking exercise.

b) Post the first national workshop and based on initial assessment of the information, data and feedback that was received from stakeholders, NRE proceeded to engage with key government agencies and departments on a one to one basis. This one to one engagement has been a continuous and reiterative process throughout the duration of project till the final draft of the report was finalised.

c) The Ministry also led a working mission to the States of Sabah and Sarawak in order to receive more information, updates and elaboration on key state level initiatives that were deemed relevant and crucial for reporting purposes.

d) As a more consolidated report emerged as a result of the one to one interactions, the working mission and other means of engagement, a second national workshop was held in November 2013. The purpose of this workshop was to present a full working draft to the stakeholders to enable and facilitate consensus building, verification of data, provide opportunity to update data and well as assist towards identification of any gaps in the working draft report.

e) The Ministry proceeded to hold smaller thematic focus group meetings and consultations in order to further solidify the contents of the report.

f) In early January of 2014, a 'Core Group' was established consisting of members from key government agencies and various ministry representatives from Peninsular Malaysia, Sabah and Sarawak. The main function of the core group was to scrutinise the final draft for consistency, accuracy, comprehensiveness and last but not least to ensure if the report complied with requirements of the CBD guidelines.

g) The final report was presented to the National Steering Committee and thereby adopted and endorsed.

h) The 5th National Report for Malaysia was submitted to the CBD within the stipulated time frame.

The development of the Fifth National Report was coordinated by the Biodiversity and Forestry Management Division, Ministry of Natural Resources and Environment, with the participation and consultation of the following primary stakeholders:

- Ministry of Science Technology and Innovation
- Ministry of Agriculture and Agro Based Industries
- Economic Planning Unit, Prime Minister's Department
- All State Governments
- Forestry Department Peninsular Malaysia
- Department of Wildlife and National Parks
- Department of Marine Park Malaysia
- Forest Research Institute of Malaysia
- Department of Agriculture
- Department of Fisheries

- Department of Veterinary Services
- Town and Country Planning Department
- Department of Statistics Malaysia
- Department of Irrigation and Drainage
- Malaysian Agricultural Research and Development Institute
- Fisheries Research Institute
- Malaysian Institute of Maritime Affairs
- Sabah Forestry Department
- Forest Department Sarawak
- Sabah Wildlife Department
- Sabah Parks
- Sabah Biodiversity Centre
- Sarawak Biodiversity Centre
- WWF Malaysia