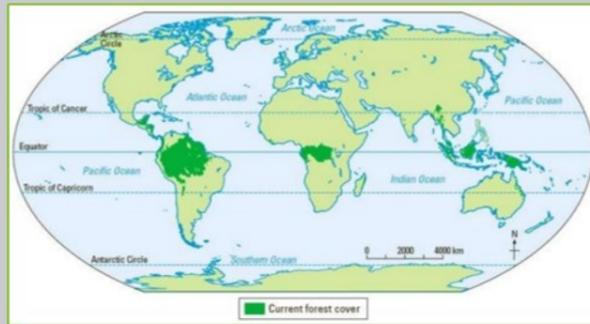


## Where are tropical rainforests located?

Located in a band along the Equator, between the tropics of Cancer and Capricorn.



## What is the climate like in tropical rainforests?

- Temperature high and consistent throughout the year (average 27°C).
- Rainfall is high (over 2,000 mm a year).
- Rainfall does vary throughout the year, with a wet season lasting 6 months.
- Climate is wet due to Global Atmospheric Circulation, causing low pressure at the Equator with rising air forming rain clouds.

## What are the characteristics of the TRF?

### Soils

- Infertile, with thin fertile layer at the surface.
- Rapid nutrient cycle.
- Leaching takes away nutrients due to heavy rainfall.
- Red, iron-rich soil called latosol.
- Very deep.

### Water

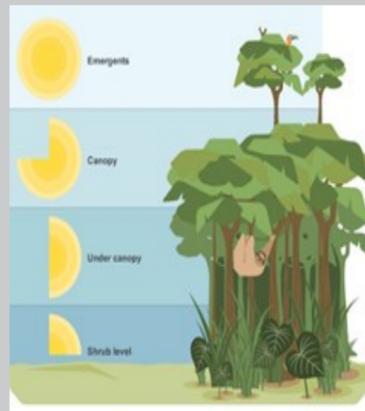
- Water cycle causes the rain to fall every day.
- Rain intercepted by trees, evaporates, cools to form clouds, and falls again as rain.

### People

- Indigenous tribes live in harmony with the forest, subsistence farmer.
- Population growth and deforestation is threatening their way of life.

### Stratification

Plants grow in layers. Due to the high levels of sunshine and rain, there is high biodiversity, so fierce competition for sunlight.



## How have plants adapted?

Epiphytes



Buttress roots



Lianas



Thin, smooth bark



Drip tips



Thick, waxy leaves



## How have animals adapted?



**Orangutans** are camouflaged and have up to 7ft long arms with strong grip which are perfect for a life in the canopy.

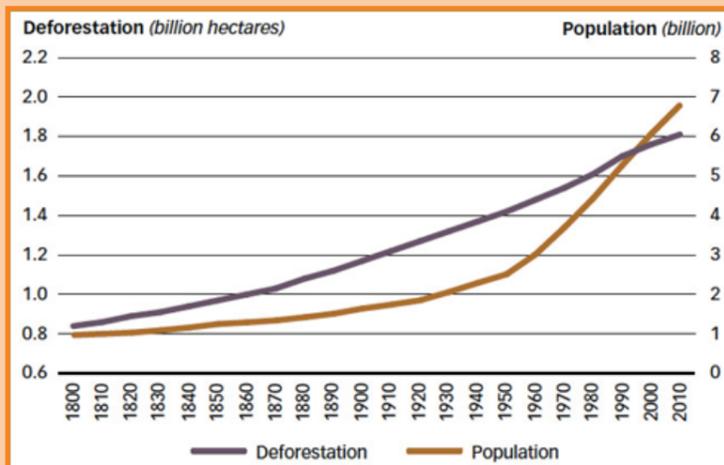


**Rhinoceros hornbills** use their impressive double bill to help them climb trees, they also eat the insects monkeys don't like.



**Malayan tigers** are well camouflaged and are nocturnal, so can quietly hunt at night on the forest floor.

## Changing Rates of Deforestation



## Why is the Malaysian being deforested?

- **Logging:** world's largest exporter of tropical wood in 1980.
- **Mineral extraction:** tin and smelting in Peninsular Malaysia.
- **Energy development:** Bakun Dam provides HEP for industry.
- **Road building:** providing access to new mines and settlements.
- **Population pressure:** transmigration of poor urban people.
- **Commercial farming:** tax incentives for palm oil plantations.

## What are the impacts of deforestation?

- **Soil erosion:** without trees the soil erodes and loses nutrients.
- **Loss of biodiversity:** species are at risk of extinction.
- **Climate change:** without trees absorbing CO<sup>2</sup> climate change is accelerated. Also, without the trees there is less evaporation, so the local climate is hotter.
- **Economic gains:** mining, farming and energy provide direct and indirect jobs; exports e.g. palm oil and taxes for the government.
- **Economic losses:** pollution and climate change are causing issues.

## How can we sustainably manage deforestation?

- **Selective logging and replanting:** means whole areas of trees are not destroyed and gives them time to grow back.
- **Conservation and education:** by making national parks means areas are protected from deforestation.
- **Ecotourism:** allows local people to earn money but by protecting the rainforest at the same time. This is sustainable.
- **International agreements:** encourage countries to protect their rainforest e.g. debt-for-nature swaps and the FSC.

## Why is the tropical rainforest valuable?

- **Biodiversity:** they contain 50% of the world's plants and animals and are home to thousands of different species. Some may become extinct before they are discovered!
- **Climate change:** they absorb and store CO<sup>2</sup>, a gas partly responsible for climate change.
- **Climate:** known as the 'lungs of the world', 28% of the world's oxygen comes from rainforests. They prevent the climate becoming too hot and dry.
- **Medicine:** around 25% of all medicines come from rainforest plants. More than 2,000 tropical rainforest plants have anti-cancer properties.
- **Resources:** they provide valuable hardwoods as well as fruit, coffee, nuts and rubber.
- **Water:** They are important sources of clean water, 20% of the world's fresh water comes from the Amazon basin.
- **People:** Indigenous tribes live in harmony in the world's rainforests making use of the forest's resources without causing any long-term harm.