

# Tropical Rainforests

## Tropical Rainforests in Singapore

The forests in Singapore are among the oldest in the world, sharing their ancestry with those found in the rest of South-east Asia.

Although we are a city state, patches of primary rainforests can still be found in the central part of Singapore - Central Catchment Nature Reserve and Bukit Timah Nature Reserve. Surrounding them and dotted around the island are secondary rainforests. Our forests are different from tropical rainforests elsewhere in having only a main canopy layer, with widely spaced out emergent trees extending above it. Within the canopy layer are many climbers, rattans, palms and epiphytes. Our forest floor is not as dark as in other rainforests, allowing the growth of many shrubs and ferns.



Long-tailed Macaque  
*Macaca fascicularis*



Despite the small size of our rainforests, Singapore is proud of its rich forest community.



Giant Millipede  
*Thyreoxenus sp.*

## What are Tropical Rainforests?

Tropical rainforests are one of the richest and most complex ecosystems on Earth! They have been likened to lush gardens, teeming with life. Tropical rainforests cover only about 6% of land on Earth, yet they are home to half or even two-thirds of the world's plant species! Rainforests achieve such high plant diversity through having tall trees (growing to 40-45m), multiple layers (canopy, under-storey, shrub layer and forest floor) and specialization of plants (e.g. vines, epiphytes and pitcher plants).

Rainforests also support a high diversity of animal life, with representatives from almost every major group. Symbiotic relationships between plants and animals (e.g. ant-plant and ants, figs and the fig-wasps) are common.

Surprisingly, the soil in rainforests is generally poor. Heavy rainfall wash nutrients away easily. The ecosystem sustains its richness through high primary production and efficient recycling of nutrients. Nutrients released during decomposition are quickly taken up by the network of roots. Symbiotic fungi found among the roots (called Mycorrhiza) help plants retain the nutrients.

## Why are Tropical Rainforests Important?

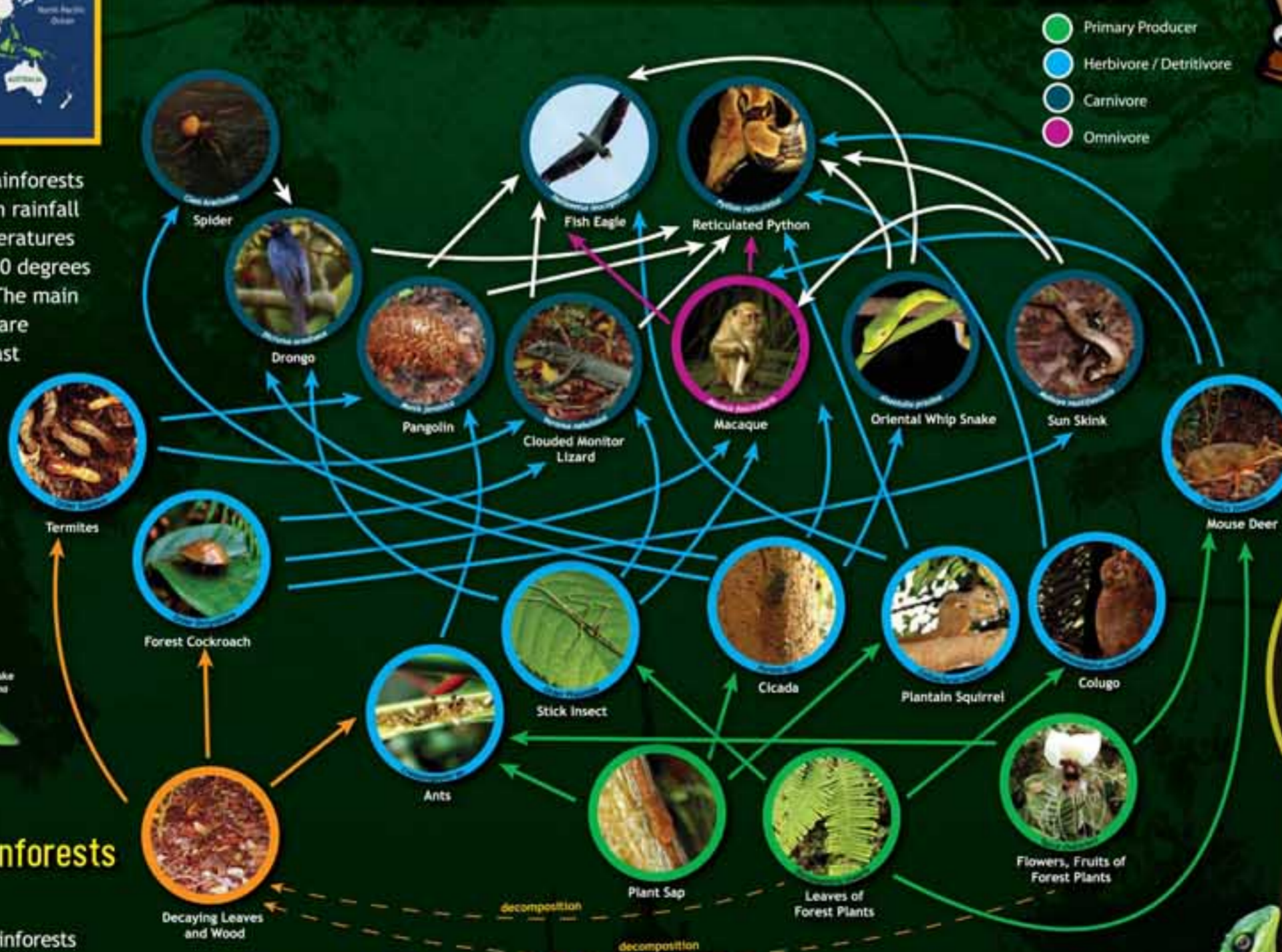
- They sustain high biodiversity and are important habitats for land (terrestrial) organisms
- They remove carbon dioxide (acting as an important carbon sink) and give out precious oxygen
- They affect weather systems, helping to prevent extreme events like floods and droughts
- They act like 'sponges', soaking up surface water and 'storing' it. They are also important in the Water Cycle
- They prevent erosion which in turn prevents the desertification of land and sedimentation of rivers
- They provide people with food, medicines, raw materials and jobs
- They support an eco-tourism industry in many countries

## Where are Tropical Rainforests Found?



As the name suggests, tropical rainforests are found in the tropics with high rainfall (1700-2000mm a year) and temperatures (20-34°C). They occur between 30 degrees north and south of the Equator. The main tropical rainforests of the world are found in South America, South East Asia, parts of Africa, Central America, Southern India and North East Australia.

## Key Tropical Rainforest Organisms



What's furry, feeds its baby milk and has the largest membrane among gliding animals? Yes! It's a colugo! We colugos are exclusive to South-east Asian rainforests and there are only 2 species in the world!

We spend most of our time just clinging onto tree trunks or hanging from branches. Most of us blend right into the surrounding trees with our camouflaged brown, black and white fur (some colugos have reddish brown fur). Sometime during the night, we climb trees to gain height and off we leap, spreading out our 'skin-kites' and gliding for as far as 100m! Watch us and you will see that our glide path is 'J-shaped'! Leaves are our favourite food, but we do eat flowers too.

## Threats to Tropical Rainforests in Singapore

- Small size and patchiness of rainforests makes them prone to habitat loss
- Disturbance of forest animals by people (e.g. feeding of monkeys)

## Worldwide

- Logging activities (for timber)
- Clearing of rainforests for developments (towns, buildings), plantations, farms and ranches
- Over-collection of plants and poaching of animals
- Climatic change (e.g. temperatures changes and rainfall patterns)
- Forest fires

## Conservation of Tropical Rainforests

We can conserve rainforests by:

- Reducing our consumption of forest products (e.g. by recycling paper)
- Zoning parts of forest reserves for different usage (e.g. sanctuary/reserve, recreational zone)
- Educating people on the importance of rainforests and the diversity of rainforest life
- Educating people to harvest forest products only where necessary, and at a sustainable rate
- Controlling poaching and activities that damage the rainforests or harm rainforest plants and animals
- Enhancing forests through reforestation programmes



Green Crested Lizard  
*Bronchocela cristatella*



Moth Caterpillar

