

Coral Reefs in Papua New Guinea

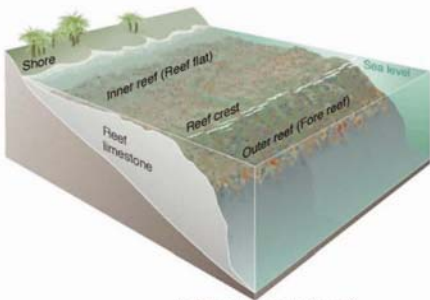
There is greater diversity around the reefs of Papua New Guinea than any other reefs on the planet. The reefs are thought to be home to over 2,000 species of fish, however the PNG area is poorly surveyed and contains thousands of uncharted reefs.



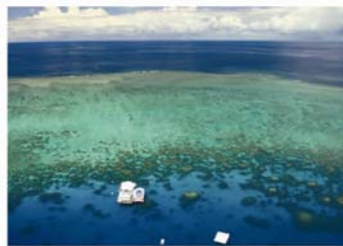
A unique characteristic of PNG's coastline is the deep water which comes very close to the shore. Only a couple of feet away from the shoreline are vertically dropping reef walls which are known to reach down to 1000 feet or more.

In the more sheltered bays delicate coral formations are spread to enormous sizes, resembling towers some of these almost reach the surface.

There are four main types of reef present along the PNG coast; fringing reefs, platform reefs, atolls, and barrier reefs.



A fringing coral reef



A platform reef



An atoll reef

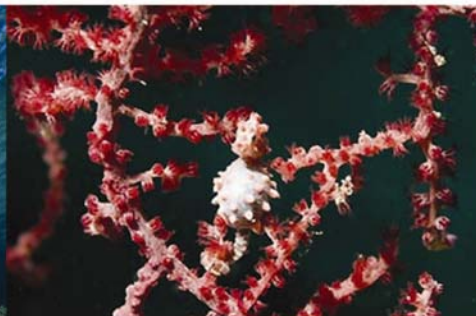


A coral reef

Below are some of the animals that use the coral reefs for food and shelter



A salt water crocodile on a Brain coral



Pygmy Seahorse



A lion fish

Below are some of the different corals you can find;



A coral 'bommie'



Soft coral

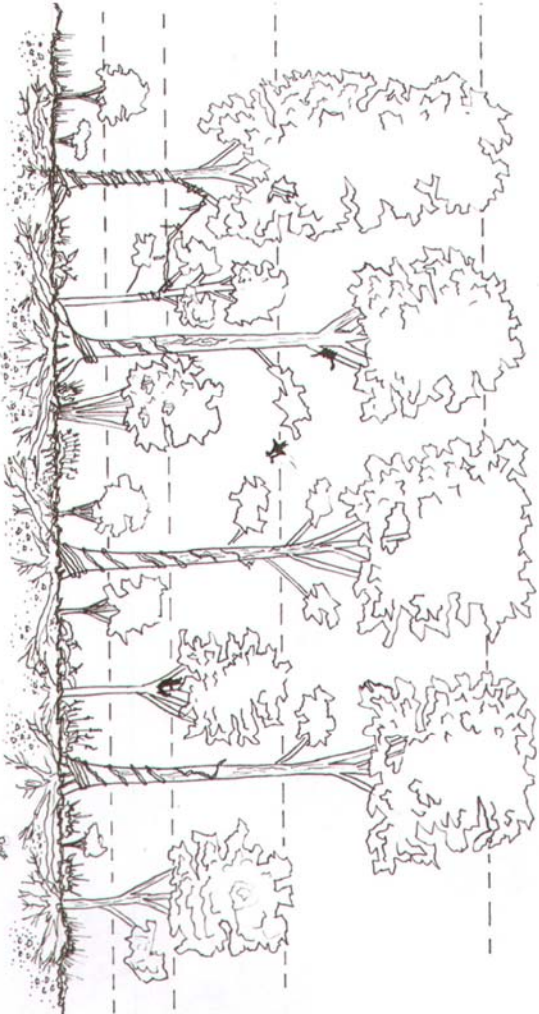


Staghorn coral and Green Chromis

The structure of a Rainforest

The structure of a rainforest can be broken down into many different parts. Each of these parts is important in making sure that the rainforest is able to regenerate itself, and thus support such a large amount of wildlife and plants. The different structural elements are shown to the right, and next to these, some of the animals and food that they support.

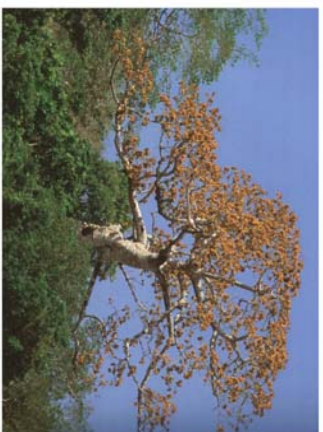
When a tree falls, it allows a large amount of light to reach the forest floor. This often results in a rush of growth from the understory, shrubs and forest floor to try and get as high as possible before another tree does, blocking out the sunlight. Many rainforest plants have evolved to grow very fast when the opportunity arises. Some vines grow so fast you can actually see them grow!



A diagram showing the structure of a lowland tropical rainforest.



Insects play an essential role in keeping the rainforest alive. Because there is little wind to help pollinate plants, the insect and plant communities have become closely linked. First, the insects are attracted to the nectar in the plants, which they feed on. After the insects have fed, they take the sticky seed and pollen with them, and deliver them to the next plant in their feeding route, allowing new plants to be born.



The canopy is the most productive part of the rainforest, and is where most of the leaves can be found. The top of the rainforest receives the most sunlight and heat, allowing photosynthesis, which enables the trees below to grow faster and stronger. Sometimes, you can find a small number of very tall emergent trees.



Below this canopy are the shrub and understorey layer. This is where the next generation of trees is to come from. These are trees that have managed to find a light source coming down through the main canopy. If they are able to, they will continue to grow to full maturity.



The rainforest floor is where a lot of new growth must start. It is full of seeds and small plants, that are waiting for light to reach them. They are often highly adapted to grow very fast when the opportunity comes. Light can be difficult to find in the rainforest.



Hornbill



A selection of tree food!



A bird of paradise courting

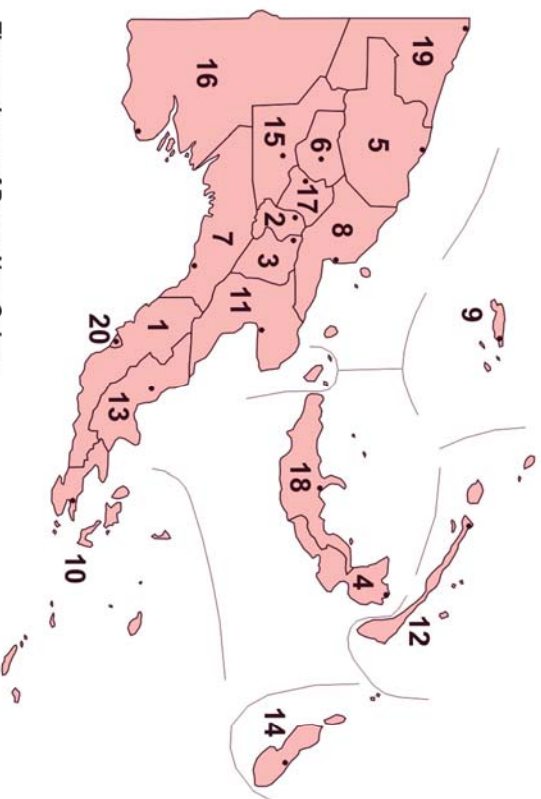


Ants gathering food



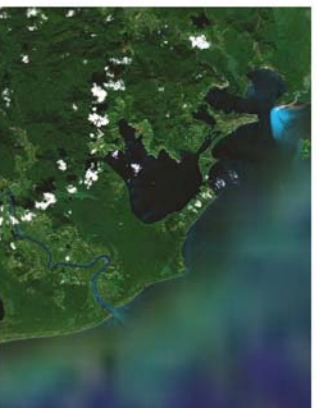
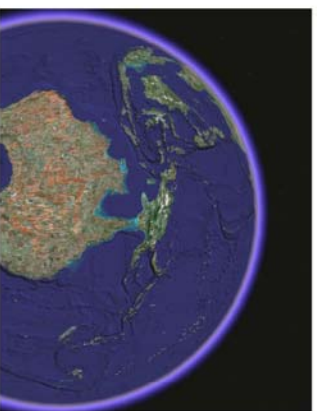
A large tarantula injects a snake

Papua New Guinea: An introduction.



The provinces of Papua New Guinea

- 1 Central
- 2 Chimbu (Simbu)
- 3 Eastern Highlands
- 4 East New Britain
- 5 East Sepik
- 6 Enga
- 7 Gulf
- 8 Madang
- 9 Manus
- 10 Milne Bay Central
- 11 Milne Bay Morobe
- 12 New Ireland
- 13 Northern (Oro Province)
- 14 Bougainville (North Solomons)
- 15 Southern Highlands
- 16 Western Province (Fly)
- 17 Western Highlands
- 18 West New Britain
- 19 West Sepik (Sandaun)
- 20 National Capital District



These are satellite images of Papua New Guinea, gradually zooming further into 'Morobe' province.



Satellite images of Morobe province from space. The images have been rotated to show coastal and inland perspectives

Papua New Guinea is officially the Independent State of Papua New Guinea, is a country in Oceania, occupying the eastern half of the island of New Guinea and numerous offshore islands. It is located in the southwestern Pacific Ocean,

It is one of the most diverse countries on Earth, with over 850 indigenous languages and at least as many traditional societies, out of a population of just under 6 million. It is also one of the most rural, with only 18 per cent of its people living in urban centres. The country is also one of the world's least explored, culturally and geographically, and many undiscovered species of plants and animals are thought to exist in the interior of Papua New Guinea.

Morobe Province is a province on the northern coast of Papua New Guinea. The provincial capital is Lae. The province covers 34,500 km2, with a population of 539,725. The province has 9 administrative districts and 171 languages are spoken.

The country's geography is similarly diverse and, in places, extremely rugged. A spine of mountains runs the length of the island of New Guinea, forming a populous highlands region. Dense rainforests can be found in the lowland and coastal areas.

Papua New Guinea;
A Rainforest food web



Types of rainforest

Most species of tree and shrub in rainforests are evergreen. The trees found in rainforests all over the world tend to have the same simple design. Trees in rainforest are tall, have slender trunks and simple, branching, umbrella shaped canopies. The reason that these trees have such large buttresses, or roots, at the base is because they stabilise the tree, as the root systems are often shallow due to the poor soil. An example of this can be seen below, with the impressive roots of a fig tree.

Because trees in the rainforest have a continuous source of sunlight, and there is little difference in the weather between the four seasons of Winter, Spring, Summer and Autumn, trees are able to continuously regenerate themselves, growing new leaves as soon as old ones die out. This means that they are continuously growing.



The differences between trees. On the left, we see a magnificent fig tree, with supporting buttresses. On the right is a deciduous Beech woodland in the United Kingdom



More trees in the United Kingdom are deciduous than in Papua New Guinea, because of the the seasonal climate. This means that they lose their leaves for several months of the year. They then have leaves at times of the year when there is more sunlight. They also tend to be shorter, as the growing season is shorter. Tree trunks in the United Kingdom are thicker, as the root systems are bigger due to the good soil. Below, and right, you can see a deciduous woodland. The leaves have fallen to the ground, and all plants await the warmer weather to commence growing again.

The Sun

The sun is vital for all life on earth. Plants are able to take the energy of the sun, carbon dioxide and water and turn this into sugar, which they use to grow.

This reaction creates Oxygen, which we and all other animals need to breathe.



Lowland tropical rainforest is the most common kind of rainforest in the world. They have the greatest diversity of plant and animal species of all rainforest.

Deciduous tropical rainforest occurs slightly above and below the tropical equator. The climate here is more seasonal, with periods of wet and dry weather. More trees here are deciduous, meaning that their leaves fall from the trees allowing new growth from the forest floor.

Flooded rainforest are areas of rainforest that are regularly flooded by large rivers. Papua New Guinea's Fly and Sepik rivers are famous examples of this type of rainforest that are still left in South East Asia, as these two rivers are surrounded by large wetland areas. Flooded rainforests all over the world are coming under threat from modern day shrimp farming.

Tropical mountain rainforest is found high in the mountains. Leaves on the trees are smaller here, and trees take longer to grow.

Mangrove rainforest is a highly specialised type of rainforest. They occur in tidal, salty environments, where the trees have evolved specialised roots that stick up out of the water and mud so that they can absorb more oxygen.

Papua New Guinea contains four of these five types of rainforest; tropical mountain rainforest, lowland tropical rainforest, flooded rainforest and mangroves. They are part of a unique and precious heritage, both in terms of the cultural and ecological value.

