Tropical Rainforest

Description and locations

Tropical Rainforests, by definition, are a regional group of distinguishing plants and mammals and communities that have a large percent of yearly rainfall. The rainforest is split in to four (4) parts: emergent, upper canopy, lower canopy and forest floor. The emergent layer consists of the tallest trees. The upper canopy is the primary level of the rainforest, forming a roof over the rest of the forest. In the lower canopy, there is very little sunlight and most trees never grow past 12 feet tall. The forest floor is dark and almost no sun reaches it at any time during the day. The Rainforest receives between 67 and 100 inches of rain fall a year. Tropical Rainforests are, primarily, located in the tropics between the Tropic of Cancer and the Tropic of Capricorn. They are located in Central America, South America, Africa, Southeast Asia, and Australia. The Tropical Rainforest in Brazil has, arguably, the largest river in the world - the Amazon.

History

The rainforest began to form almost 140 million years ago. Tribal groups have always lived in the rainforest, using its resources to provide food, wood, medicine and homes. In the 5th Century, ten million people lived in the rainforest. In the last 100 years, though, the population of people living in the rainforest was reduced by 90%. However, there are still tribal groups that live deep within the jungle and have no contact at all with other humans. The rainforests in New Guinea, Indonesia, and Malaysia, for example, are home to hundreds of tribal groups.

Most scientists go into the rainforest looking for new medicines. There are over 1400 plants in the rainforest that have the ability to cure cancer. In the 1800’s and 1900’s, people came into the rainforest to mine for gold and other minerals. They also cut down trees and sold the land for farming. Although the rainforest soil has little nutrients, deforestation has become a big problem: Countries like Brazil are losing 50,000 sq. km of forest a year and Indonesia is losing 12,000 sq. km a year. In 1986, two dozen species went extinct every day.

Water amounts

The rainforest receives about 12 hours of sunlight every day and it rains almost every day during the wet season. Rainforests have only two seasons: A dry season and a wet season. It has high humidity - levels at 77% to 88%. The rainforest contains 1/5 of the world’s fresh water. Half of the rain that falls on the rainforest comes from the Atlantic Ocean the other half comes from the rainforest itself. The rainforest receives an average of 8 to 14 inches a year.

Human Issues

The Rainforest is quickly disappearing at an astonishing rate of 87,000 square miles per year. Humans constantly destroy rainforests for their own riches and supplies, not taking care the manner in which they do so. Rainforests are destroyed by fires deliberately set to clear land, by chemical wastes dumped in the water, and by bulldozers. Deforestation is caused by many factors, including cattle ranching, farming, logging, and mining.

Cattle ranching is a major cause of deforestation, where lands are cleared and cows are raised. The problem with ranching is that the vegetation of the cleared land area soon runs out, so farmers must keep moving for new grass and plants. This is “compensated” because so much quick profit is made of ranching.

Farming, mainly soy farming, is another cause of deforestation. The rainforest’s soils are very poor, so farmers must keep moving deeper in to the forest every year or two, to find healthier, rich soil. Shifted cultivation is a form of agriculture, especially used in tropical Africa, in which an area of ground is cleared of vegetation and cultivated for a few years and then abandoned for a new area, until its fertility has been naturally restored, which could, possibly, never happen. Shifted cultivation destroys the rainforest and abuses the nutrients so the area is no longer fertile and, therefore, plants cannot grow. The farmers, then, move on and repeat the process.

Logging also attacks the rainforests for valuable trees. Brazil made selling Mahogany illegal in 2001, but the illegal logging still continues. The collection of wood for firewood is another cause of clearance, especially in Africa.

Mining causes general damage to countries with rainforests. Illegal mining pollutes waterways with mercury used in the mining process, which not only contaminates the water, but also kills the fish. Miners remove solids and vegetation from the rainforests, which causes soil erosion. Oil, too, has been a big problem for the Amazon: From 1967 to 1992, Texaco drilled for oil in Ecuador and dumped billions of gallons of toxic chemicals into waste pits, which seeped into rivers. The Amazon has many riches and, even though mining is not a huge, direct threat, along with it comes roads which attract settlers.

Humans cause damage not only to the habitat itself, but to the inhabitants of those habitats, too. Scientists estimate that 50,000 species of the world’s rainforests become extinct every year – that is 137 species a day! Many animals die from poaching, as these animals are wanted either as pets or for their unique traits. Middlemen, or traffickers, make huge profits by selling these animals worldwide.

Government attitudes/Laws

The Brazilian government is trying to stop deforestation and has passed a few laws to do so, but it is not enough. As for the other countries, Ethiopia is trying to prevent deforestation but is no doing much. Both Brazil and Ethiopia have realized that the condition of their country will worsen if deforestation continues, and are, now, trying to set a good example for other countries.

Brazil joined the WWF (World Wildlife Fund) and the ARPA (Amazon Region Protected Area) program, to help keep the rainforest alive and thriving. The ARPA is a program established to set up 80 reserve camps that will total the size of California. In 2007, Brazil launched the Arc of Fire program, which cracks down on illegal logging camps and has proven very useful in stopping loggers.

In Ethiopia, the government has begun to teach people of the uses of the forests and encourages people to keep them in better condition. The government cannot prohibit people from cutting trees, though, because it would make survival for communities in the rural country very challenging. The rural peoples, now, will be provided electricity and machinery as an alternative source to wood. And, if a tree is cut down, the cutter must replant another one.

In summary, many governments are working to stop deforestation more than ever, but work must be continued, so that deforestation can, ultimately, be minimized.

Usefulness

Rainforests around the world provide many useful things to many people. They supply 20% of the earth’s oxygen - indeed; the rainforest is the earth’s lungs, keeping its inhabitants happily breathing and alive. The rainforest also supplies wood and minerals - a great source of riches to the hosting country. Rainforests are also widely used for medicine and medical research. A huge 25% of Western pharmaceuticals are derived from ingredients found in Tropical rainforests. Rainforests are much more than homes to animals and wood; they help keep the world, as we know it, functioning.

Global warming effects

The earth receives 20% of its oxygen from the rainforests. This oxygen is what keeps life going. The trees do not only produce oxygen, but they remove carbon dioxide from the atmosphere, too. Carbon dioxide is a greenhouse gas that traps in heat. Tropical forest trees, like all green plants, take in carbon dioxide and release oxygen during photosynthesis. Plants also carry out the opposite process, known as respiration, in which they emit carbon dioxide, generally in smaller amounts than taken in during photosynthesis. The remaining carbon is stored in the plant, allowing it to grow bigger. That stored carbon would be released into the air as carbon dioxide if deforestation or forest degradation occurs and trees are cut down and allowed to rot or are burned.   Clearly, this would be deleterious to the environment and to all living things. If we wish to prevent global warming, we have to reduce and stop deforestation.

Living organisms – Special Species/Plants/Animals

The Amazon Rainforest is home to almost half of all the world’s animals! There are a variety of animals, some that have lived there for a long, long time and some that are new to this world. Some of these amazing animals are the weevil, the Panther chameleon, the Nymphalid butterfly and many more. One of the most interesting animals in the rainforest is the Giant Anteater. The Giant Anteater hunts down ants in the dirt one by one with its long trunk. Finally, when it sniffs out an ant nest, it tears it apart and eats it savagely. To us, ants are animals that no one really pays attention to; but to them, it is like going to a parade and having a feast!

Animals aren’t the only amazing thing in the rainforest, of course. More than half of the world’s plant types live in the rainforest. The epiphyte is one interesting plant type that lives in the canopy. Epiphytes grow high in the rainforest's upper stories. The plant gets water and nutrients, or food, from the air, not from the soil. Many types of orchids and ferns are epiphytes and are found in rainforests.

Problems

Rainforests are now becoming smaller and smaller for a variety of reasons. Demolition workers are clearing up space for farmers to live and have their field, but, in the process of taking down all these trees and plants, they are making the soil unfertile, causing farmers move away because of the bad soil quality. When the soil is ruined, it is not just for the farmers but, also, for “decomposers”. Decomposers are animals such as earthworms, beetles, fungi, microbes, and others that call the soil home.

Because of population increases, there is a lot of construction. Roads, buildings, houses and infrastructure are, as well, causing massive parts of the Amazon to be destroyed.

Future

The destruction of rainforests is a problem because they are home to 20 percent of the world’s fresh river water. If this process continues at such a rapid rate, in forty years, almost 50% of the world’s animals may never have a home or an environment that fits their needs. Many undiscovered cures for diseases may exist in the rainforest that are disappearing forever. Before this tragedy, tropical rainforests used to cover about 6 billion acres of land! Now that 6 billion is down to about 3 billion or maybe even less. Also an estimated 140 animals and plant species are lost every day because of deforestation and greenhouse gasses. But this is only the beginning of the end unless we all unite and ensure the safety of our rainforests. What will happen to the rainforests? What will happen to us?