



Highly Commended

Science Writing Year 9-10

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Climate change; the way forward

for the Amazon Rainforest

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Climate change is the long-term alteration of temperature and typical weather patterns in a certain place (Society, 2017) Climate change can create weather patterns that are less predictable, because of this it can be difficult to maintain and grow crops and can create other damaging weather events. Within the past years' climate change has risen at an increased pace. There are many effects of climate change that have occurred in the environment these include; global temperature rise, warming oceans, shrinking ice sheets and glacial retreat. These all have effects in all parts of the world; however, one large environment, the Amazon Rainforest has had severe effects of human induced climate change.

Scientific research suggests that a major factor of maintaining an efficiently functioning ecosystem is biodiversity. This concept decreases the chances of extinction, enables adaptation for organisms in an environment and allows a variety of materials and nutritious goods that are essential for survival to be accessible. Each of these aspects are due to the fact that each organism serves an important purpose to keeping a balanced ecosystem, hence why a healthy and maintained ecosystem such as the amazon river can resist and recover from a variety of human related or natural disasters. In order to avoid extinction and to increase the total life expectancy of a species, genetic diversity must be conserved by protecting different populations of species (relying on organisms to depend on one another to protect each-other) as it reduces diseases, aids species to adapt to their environments and enables the availability of an array of nutrients provided by producers and consumers (Australian museum, 2018). Biodiversity and genetic diversity have led to the adaptation of organisms in ecosystems such as the Amazon River. For example, the Pink river dolphins, that are native to the amazon river have stiff hairs on their beak enabling them to sense their prey (Animal spot, n.d.), and the Victorian Amazonia (The giant water Lily) have thorns on the bottom of their leaves as a concept of protection from predators such as fish. Adaptation is necessary for species such as these due to their vulnerability to both the organisms around them and a series of human threats. The amazon river is one of the most biodiverse ecosystems on the planet as it is home to approximately 2500 fish species and is believed to have a huge number of species that have yet to be discovered (R. butler, 2020) The biodiversity of The Amazon river is crucial as it assists organisms to resist and recover from the stress implicated on them.

The waste and cause of climate change in the Amazon rainforest



The cause of climate change within the Amazon rainforest can be caused by many different aspects. The main, more effective issues in the Amazon rainforest are usually caused by people that come into the Amazon rainforest

or problems effecting the areas around the it. Models suggest that by the year 2050, temperatures within the Amazon will increase by 2-3°C and while this is occurring there would be a decrease in rainfall, which will lead to widespread drying. This all occurs because of the habitat destruction that is ongoing in the Amazon (Climate change in the Amazon, n.d.)

Bio-privacy and smuggling are also key parts of rise of climate change. Plants and animals from the Amazon are smuggled to sell abroad as pets, food and medicine. The trade of these plants and animals have led to a decline in wild populations and can possibly threaten the habitat of these species through destruction and pollution. Due to the negative economic effect on society from smuggling, it was estimated that a profit \$5 billion USD was earned through illegal trade of animals and plant species in 2008.

Along with plant and animal threats, damming is a threat to the Amazon river and benefits humans. Not only does damming interfere with the river's hydrological cycles and nutrient flows, but it also restricts the breeding and feeding grounds of fish species, while areas that have become overwhelmed with water substantially generate greenhouse gas, dramatically altering habitats (R. butler, 2013). In addition to the consequence of damming, mining is a threat to the amazon due to the destruction of many habitats from chemicals and sediments being washed down into the river hence for water and soil contamination leading to the death of many fish and other aquatic species. Although these deaths may seem like a small consequence, many small consequences lead to larger consequences, in this case, the extinction of a species.



Damming in the Amazon River
B. Fraser, 2015

Human Impacts

Due to the many human threats to ecosystems such as the Amazon River, the habitat species is being destroyed and put at jeopardy leading to a possible decrease in biodiversity. Not only is the habit of species put at risk, but the extinction of a species is put at risk. This significantly dangers the economy and functionality of the Amazon river.

Deforestation negatively impacts the Amazon river as it can affect the wildlife through increasing the variability of the water between dry and rainy seasons. In addition to this, it is estimated that there has been an occurrence of spurring soil erosion, altering water quality, clarity, triggering sedimentation due to the 56% of deforested floodplains along the lower amazon from 1970 - 2008 (R. butler, 2013).

Poaching is illegally hunting animals in order to sell raw materials leading to the creation of finished products. This is another important issue that the Amazon is currently facing. The Giant amazon river turtle, and the Amazon Manatee are examples of species in the amazon that are slowly beginning to vanish due to poaching (Rainforest Cruises, 2012). Along with many other human impacts such as damming and mining, the effects of human interaction in the Amazon Rainforest creates large consequences to the flora and fauna that are native and/or are living in the rainforest.



Deforestation in the Amazon Rainforest
Nest and Glow, n.d.

The way forward in the Amazon

Although there are many negative impacts of the human interaction in the Amazon rainforest, there are still a few positive initiatives that have been placed to protect the rainforest. Many groups like WWF are focusing on protecting critical land areas and the species living within them. The WWF have partnered with various governments to enforce stricter policies that ensure that the Amazon rainforest is protected (Sciencing n.d.). Other ways that organisations are protecting the Amazon rainforest is by trying to reduce the demand for logging in the Amazon. Main parts of this is done by persuading consumers to not buy tropical hardwood. This will lead in a smaller demand for these woods and will create decrease in deforestation in the Amazon. Many other companies and websites are encouraging that people buy recycled toilet paper, buy products with sustainable palm oil, eating less or no beef, buying less products with soybeans and less animal products (5 Products That Cause Rainforest Deforestation and Easy Solutions, n.d.) Many people encouraging this idea say that these small 'switches' of lifestyle can make a large change in the environment and the pace of climate change.

The Amazon rainforest is a very important environmental feature of the world. However, it has been affected by human activities such as poaching, deforestation and smuggling. Because of this many organisations and people have been trying to improve the situations in the Amazon by trying to reduce logging and enforcing stricter rules within the Amazon.

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