

Why Trees Are Our Friends

Introduction

Trees can predict climate change and show how the Earth's climate has changed over the years. This is discussed in more detail later on in our essay, as well as the evolutionary development of life due to trees, how the Earth's climate became habitable, how humans have destroyed and caused a rapid decline in the number of trees on the earth's surface as well as many questions that have been raised due to ever expanding knowledge of the Earth we live on. You will also be given insight as to what the future of life is edging ever so close to due to the impact we have on trees and the impact trees have on us. Many people may know that trees provide us with oxygen and take in carbon dioxide that we release into the atmosphere, however there are so many more things that trees provide for us and for the environment itself and because of this limited knowledge many have on the influence that trees have on us, they therefore underestimate the effect that they have on trees, and how this directly influences many issues that humans as a species have to face throughout a life time, which could have been reduced if many people viewed the world from the future rather than the present. This would not only cause the future of trees the environment and people to live in a more idealist nature, but it would also cause the nature of today to be much more enjoyable for past and present generations.

Trees of the past

The earth's early atmosphere, about 4.6 billion years ago, consisted mainly of CO_2 and was similar to that of Venus or Mars today. Life was very scarce as most living things could not survive or evolve under these conditions. The Earth began to cool, and the large volume of water vapour in the atmosphere condensed and fell as precipitation to form oceans. The oceans are known as carbon sinks, as the CO_2 dissolved into the water. As a result of this, the concentration of carbon dioxide fell dramatically and, therefore allowed photosynthesising organisms to evolve. These included algae,



and plants (trees). The plants, trees and algae took in CO_2 from the atmosphere, and released oxygen. Over a prolonged period of time, the volume of oxygen in the atmosphere increased through the processes of photosynthesis carried out by trees. Over time, more and more trees began to evolve which therefore increased oxygen in the atmosphere, and allowed for more complex life forms to evolve. Examples of these include birds, foxes, fish, and humans. Due to the evolution of trees, we have had the ability to come into existence. Therefore, we owe thanks to trees for their contribution to our evolution.

Consequently, without the evolution of trees life on earth would not exist and we wouldn't be where we are today. We also wouldn't have an in-depth level of knowledge, in which we have gained about the world we live in. Due to this knowledge two questions arise: one of which is where would Earth be today if trees did not exist?, which we will explore later in more detail. And secondly, where would Earth be today if humans did not exist? Some may answer one cannot exist without the other, however this is because many people do not like to admit the fact that we are the ones who cannot live without

trees, yet we are the ones leading them to extinction. This therefore, tells us that the earth would subsequently be profoundly better without the existence of humans as we are the cause for all the problems Earth has to face today.

10,000 years ago, 10.6 billion hectares of land was habitable on earth and 71% of this surface was covered by forests. Only 10% of these forests were lost until 5,000 years ago. Half of the total forest lost occurred between 8,000 BC to 1900 AD. This shows that deforestation is not a new problem, deforestation has occurred all this time, due to a reliance of wood for fuel . This has meant that, large areas of land had to be cleared for basic provisions. People were food gatherers and depended on trees for all their needs: food, clothes, shelter, and medicine. They gradually became food growers and cleared small patches of forest to grow their food. But they have continued to depend on forests for most of their needs. Humans have been depending on forests to cure them of various ailments for many years and still do today. Old forests have many ecological values: they contain genetic information that makes them more resilient to unnatural features such as extreme weather. This means that, a larger population of old



trees are more likely to survive through these extreme and often unpredictable circumstances than a population of new trees. Therefore, we would have hope to a better future, if these old trees were conserved and left undisturbed than removed. Old trees may also be able to save many species from extinction this is because bark texture and canopy structure develop with age providing unique micro-habitats. Furthermore, old trees can survive for a very long time providing a range of habitats even as they decay, and damage occurs. Old trees can also provide historical information like climate over the years. This can be seen by growth rings each ring represents each year of the trees life. Larger darker rings show warmer wetter climates and smaller lighter rings show cooler dryer climates. Older trees also contribute to carbon capture much more than younger new planted trees. In addition, older trees allocate more carbon to ground reserves which contributes to climate stability more than new trees do. Conversely, young trees take carbon dioxide in at a faster rate and in larger volumes than old trees do. This means that if old trees are burnt to ash then all of that stored carbon will be released in the atmosphere - even more than new trees would if they were burnt. As a result, people must restrain from burning or cutting down old trees as it would cause great damage to the atmosphere and enhance global warming. Matured forests result in interconnected ecosystems as the size and distance between each patch of forest promotes abundance of life. It helps us to discover and learn how species evolved and migrated which promotes ecosystem integrity at different scales as we can help increase biodiversity in these forests. However, researchers have found that trees in forests are dying at a faster rate than before (especially larger older trees). This is because they have endured many changes such as: climate development, new pests , harsh weathers . All of which have eventually caused these older trees to die and the newer trees to survive as they haven't experienced as many environmental instabilities. This, therefore , is threatening biodiversity by eliminating important plant and animal habitats and reducing forests ability to store excess carbon dioxide generated by our consumption of fossil fuels. Another question arises based on whether the storage of carbon in old trees and the larger intake of carbon dioxide from young trees in more beneficial to reducing climate change?

Trees of now

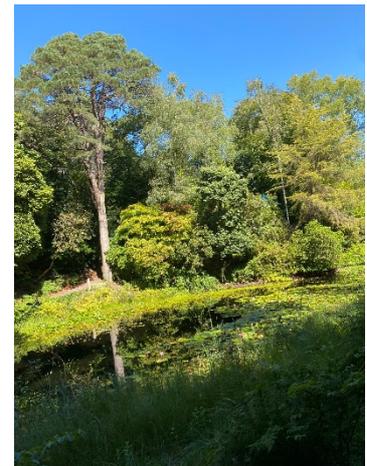


We need forests now and in the future because of the animals that they house. Forests and animals create biodiversity and ecosystems, that not only support humans, but support all life on earth. We rely on animals, and forests to provide us with the air that we breathe, and the food that we eat. Ecosystems provide clean water and purer air, as well as maintaining our climate and recycling nutrients. They also provide raw materials, like resources for medicines, which help to fight diseases. We rely on biodiversity to protect humans and increase the quality of life. Biodiversity is important because it provides healthy human life. Research shows that there is a positive correlation between disease outbreaks, and the degradation of forests and nature. Most diseases that have emerged are zoonotic – meaning they can spread from animals to humans. Therefore, maintaining biodiversity and healthy ecosystems within forests helps maintain healthy human life.

Forests provides habits for the animals living within them.

Around 80% of all land animals live in forests. If animals lose this because forests become extinct in the future, animals lose their homes/ nests, food and water source and places which they use for hunting, so most animals would lose their lives because they would be unable to survive. This impacts human life in many ways, but mainly because biodiversity would no longer exist.

However, forests also rely on animals for the forest survival. Forests are adapted to rely on animal decomposers when animals die to help thrive their growth because of the carbon cycle. They also rely on animals as pollinators and seed dispersers. If this didn't happen and all the animals in forests died, it would be difficult to maintain soil conditions to grow crops, and difficult to have variation in plants as the seed dispersal could not happen. As a result of this, forest could not survive. Essentially, forests cannot live without animals and animals cannot live without forests



Despite all of this, and the well-known fact that humans need forests to survive because of respiration, forests still seem to be disappearing. Forests have many possible threats that can affect whether they still exist in the future. Some of these include; invasive species, wildfires, insect outbreaks, climate change and frost damage. As you can see, some possible threats are caused by animals. Invasive species are organisms that become overly populated and cause ecological harm to the environment where the organism is not native. This is a threat to a forest because it could damage the healthy ecosystems that are precious to nature and human life. Insect outbreaks are similar to invasive species, there is an overpopulation of insects within the forest, which damages the forest and therefore the ecosystem and harms the biodiversity created within the forest.

Deforestation is also a very big threat to forests in the future. Deforestation and forest degradation are mainly caused by human activities. Some examples of human activities are; illegal logging to create room for farming, infrastructure such as road building and mining culture because of the high prices of minerals. Deforestation and forest degradation also contributes massively to climate change, because removing trees and forests limits their ability to remove carbon dioxide from the atmosphere. As well as this, deforestation also destroys many habitats and therefore destroys ecosystems and biodiversity. It seems like a never-ending cycle because biodiversity and forests are an essential solution to climate change, and destroying the biodiversity and forests not only releases

more carbon dioxide but also creates a somewhat un-reversible challenge because the biodiversity and ecosystems will be very difficult to replicate.

However, tree coverage over the past two decades has significantly increased. This improves the biodiversity and ecosystems within forests. This is due to awareness of climate change and the affect that trees have on reducing climate change. Currently, the three countries that have more than half of the worlds tree coverage are: Russia, Canada and the U.S. However, this is not all good news because countries are losing more trees than they are gaining, including those three countries previously mentioned. Imagine what the world would look like if we continue on the path that we have already paved the way for. The future for forests, wildlife and nature as a whole does not have much hope if people don't start realising that a big change needs to happen, and it needs to happen soon.



Trees of the future

The future continuing as we are, looks bleak. Humans have caused a mass deforestation of our planet as we have cleared nearly half of the worlds trees since we started agriculture 12,000 years ago. That's 5.8 trillion trees down to 2.9 trillion trees. Since the industrial revolution at around 1760, humans as a species alone, have caused the forests to decrease by 32 %. This isn't the smartest decision by the so-called smartest species on earth.

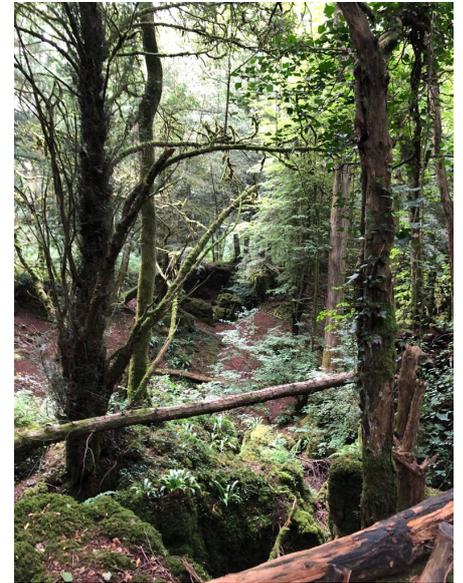


Trees and forests are so beneficial to us in multiple ways. For example , if trees disappeared overnight the world would have some significant problems that we would need to solve. To start with ecosystems and habitats would be gone causing many species of animals and plants to struggle. It is estimated that around 80% of all land animals and plants live in forests; the removal of this would

cause many animals to struggle and become extinct. All of the aquatic animals -except jellyfish would also be in trouble.

This is because trees are valuable to reducing air pollution and therefore the air pollution such as sulphur can form sulphur dioxide which can come down as acid rain. This is terrible as it would cause extreme acidification in the seas making the oceans almost inhabitable.

This process of removing air pollution is irreplaceable as the factories we use cause severe pollutants to be released into the atmosphere. In the US alone , the trees are said to have removed 17.4 million tonnes of pollutants from the atmosphere. This free service from the trees keeps the air clean and prevents development sectors from spending millions of pounds on neutralising this problem. Thus, without trees to remove these harmful substances from the atmosphere, air quality would be so poor that many respiratory conditions would rise in numbers. The lack of removal of greenhouse gases such as carbon dioxide and water would cause there own issues too. An increase in greenhouse gas emissions would cause more infrared light waves would be trapped in our atmosphere unable to escape warming up our planet. It is said that complete removal of a 25 square kilometre patch of forest causes an increase in local temperatures to rise by 2°C. This would cause an imbalance in the world's functions making many days unbearable in heat. This increase in heat combined with lack of shade would cause humans and animals to suffer or even possibly die from heat stroke. Another problem is that with warmer days that water would be less readily available and so cause droughts across the world. So in the event of rain, it would not be absorbed and would run off into seas and rivers as well as causing severe flooding. Erosion of landmass into rivers and seas make all water severely contaminated and so cost more for clean water for drinking. Life without trees would be extremely expensive as we would have to provide energy to and do the functions that trees do automatically. Trees also provide a huge sector of employment as the timber sector provides employment to 13.2 million people and generates around 500 billion pounds each year. A number of unemployed people that would not be insignificant to a struggling economy.



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But what if humans disappeared overnight? All of our personal uses for trees and plants would cease to exist. This would give an opportunity for plants (trees) to recapture land and to flourish. This has happened on a minor scale during the COVID 19 outbreak when we all forced to isolate. More animals were seen outside, and plants grew dramatically Another example of nature recapturing the land that humans have stolen from them is the Chernobyl incident, after many years of abandonment, nature has taken back its land. Flats and buildings are now being overrun with plants of all shapes and sizes, removing all aspects of the civilisation from before. If humans are the problem then why don't we try and reduce our impact?.

So, what can we do? Luckily, there's loads of ways to help out. Since around 15 billion trees are cut down worldwide each year hence one of the easiest ways is to replant more trees. You can simply buy a tree and plant it in your garden and take care of it. If you don't want to do that , don't have the space or time : you can simply invest into many different tree restoration programs. Everyone is helping out with tree replantation. Governments are even offering forestry commission funding to people and farmers if they have a large land and are willing to plant more trees. Councils are also planting more trees (see image above). Personally , I have grown an apple tree from apple seeds many years ago. Every single tree helps. Even celebrities such as Mr Beast have joined with *#teamtrees* helping to fundraise to plant more trees. *#teamtrees* plant one tree for every \$1 that is



given. This is one of hundreds of projects that is happening to regain large forests and gain more trees. There is no excuse to not help out in some way. Even a simple change in your day can help: by using less paper and being more conscience of what you're using and reducing it. This can reduce waste and also reduce the number of trees/ rainforests that are being cut down for space. Some examples are palm oil, paper, wood, and cows for beef. Reducing your need for these can seriously contribute to a brighter looking future and a one where we can all survive and thrive in.

Conclusion

By spreading knowledge and understanding of trees and their benefits to our world, we can boost their appreciation and funding in this sector (which is too low). So lets talk about this to help ourselves and help the world. There is no second chance. Once we destroy this world we have to move on to a new planet maybe mars. But there you don't have the natural beauty that we have on earth so let's treasure this gift does not ruin it. Make a small difference and that has an enormous impact: save our trees, save our animals and then we can save ourselves. After all , even if we could live in a world without trees , who would want to?

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