

Max Deschenes

Professor Kristi M Strauss

Introduction to Environmental Studies

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Devastation of the Forests

Forests cover about 30% of the entire land area of the Earth, and about 80% of all animals count the forest as their habitat. However, forests used to take up even more space on the earth, before agriculture overtook most of that space. In order to feed growing populations, agriculture has expanded and now takes up the majority of the earth's surface, and shows no sign of stopping or slowing down. In order to preserve the forests, action will need to be taken to make more efficient use of current agricultural land, and to curb further deforestation by finding less invasive and more synergistic ways to cultivate crops.

Agriculture is a sprawling industry that is necessary for both survival and prosperity, providing food and also jobs to many individuals. But agriculture is as destructive as it is necessary; with a growing population comes a growing need for more food, and in order to create more food, more land must be taken up by agriculture. Farms that produce crops, or that cultivate livestock, take up an enormous percentage of the planet's surface, about half of all habitable land. (Meijaard, 2020) Earth is a cramped little planet, and in order to make room for the fields and industry required for farming, a lot of forests must be cut down or destroyed. This is known as deforestation. Deforestation has many consequences, such as destroying vital Co₂ absorbing plant life, as well as emitting a large amount of Co₂ in the process, and that is before even going into the effects that deforestation has on animal life and ecosystems; destroying a forest displaces all the animals who lived there, and those animals have to go somewhere. Usually they either die out en masse, or invade another ecosystem in the hope of finding a habitat they can survive in. (Deforestation Fronts | Stories | WWF, 2021) This is hugely harmful to animal life on an individual and mass level, and has even driven many species into extinction because of their habitats being destroyed. It also is devastating for the planet's biodiversity. About 50% of earth's plant and animal

species exist in rainforests, but rainforests are being destroyed at an alarming rate, condemning much of this biodiversity to destruction. (Campbell et al., 2017) However, many people rely on agriculture for their livelihood, and there is no ethical alternative to growing enough food to feed everyone on the planet; therein lies the problem. How do humans continue to cultivate enough food, without destroying the planet's forests? Is there a way to do so without contributing to the greenhouse effect, destroying the habitats of many animals, and causing strain to the planet's biodiversity? Thankfully, there are some solutions that can be put into practice, though fixing the problem entirely will take reevaluation of our current agricultural processes, and new methods of creating farmland. (Foley, 2011)

Agriculture encroaches on the already dwindling forest regions of the world and deprives many animals of their habitat and many vital resources for their survival. According to estimates by the World Animal Foundation, 38 animal species have been driven extinct by deforestation alone in the past 30 years, and of the survivors about 20% are expected to go extinct in the future due to loss of their habitat. (Impact of Habitat Loss on Species, n.d.) One example of a species ravaged by agriculture is the orangutan. Orangutans are a type of ape native to the rainforests of Indonesia and Malaysia, though now they are found primarily in Borneo and Sumatra. Their lifestyle involves staying in trees; the Sumatran orangutan is almost exclusively arboreal, never touching the ground for very long, and all orangutans build nests in trees to use during the day and the night, essentially used as shelters.

So, with a lifestyle so dependent on living in the forest, it is no wonder that deforestation is harmful to their species. Logging and agriculture both contribute hugely to the decline of orangutan populations, because both of these activities deprive them of their habitat. In fact, since 1980, at least 80% of Indonesia's old growth forests were cut down. However, a logged forest that hasn't been completely cut down can still sustain a few orangutans, while an entirely deforested region is totally inhabitable for them. Many forests that were home to orangutans have been deforested and converted into fields for growing food crops, or palm oil. (What Is Palm Oil? Facts About the Palm Oil Industry, n.d.) And agriculture isn't slowing down; to put this in perspective, the area of Borneo used to farm palm oil alone grew from 2,000 square kilometers to 27,000 square kilometers from 1984 to 2003. Should this trend

continue at the same rate, the fate of the Orangutan looks grim. But it isn't just them; the same can be said for giant pandas, golden lion tamarin, mountain gorillas, and many more species. (Ozborn, n.d.)

Deforestation of the rainforests also harms humans, both economically and socially.

Economically speaking, the rainforests provide a huge amount of renewable resources to humans, in the form of biofuels. Under the right conditions, logging can be sustainable, and provide jobs to a large number of people. Comparatively, deforestation can be very dangerous, and when it does provide jobs to locals, these jobs are temporary. (Butler, 2020) While perhaps subjective, it is also not a stretch to say that the rainforests are some of the most beautiful places on Earth. These vast stretches of forest are unlike anything else on the planet, and deforestation is rapidly reducing them to scrublands.

Of course, socially an even bigger concern would be the welfare of the indigenous people who live within these rainforests. These rainforests are not unoccupied; the Amazon rainforest is home to upwards of 1.6 million people in somewhere around 400 different groups, and that is only those with which contact has been established enough to confirm the numbers. These people have lived in the rainforest for thousands of years, sustaining themselves off of it and enriching it simultaneously, and are fully integrated into the forest. Farmers and industries have no right to infringe on what is these people's rightful home; deforestation destroys their way of life just as much as it disrupts the animals who inhabit the forest, if it doesn't just outright kill them. (Bjørndal & Krogh, n.d.)

That being said, there is still enough time that, were there to be significant changes to both current and future agricultural practices, then the damage could be reversed. To contextualize this, one of the most common methods of clearing out a forest for agriculture is known as a "slash-and-burn" fire. This is a form of deforestation wherein the forest is cut down and burned as a means to clear it out for new crops. Not only is the process of burning the forest down devastating to the environment and deadly to the animals in the forest and the people around it, but it is also horribly inefficient; rainforests that have been burned out quickly suffer soil erosion because they no longer receive vital nutrients from falling leaves, and cannot support their new crops for long. This means that, once the field is no longer fertile, more

forests must be cleared. (Moore, 2019) This is a clear example of how unsustainable current farming practices are.



Caption: Devastation brought on by slash-and-burn agriculture. (Moore, 2019)

In order to get the most out of our agricultural space, we need to transition to sustainable practices; the idea behind sustainable agriculture is to produce enough food for everyone, while still protecting the environment and minimizing deforestation and expansion. Organic farming is a good way to make the most of existing resources. The core tenets of organic farming are compost, cover crops, and crop rotation. Composting is an excellent way to boost the yield of a crop, and is also very efficient; compost is often composed of food scraps or natively occurring organic matter like leaves, which means that it is relatively easy to collect. Cover crops are a type of crop that is planted to protect and enrich the soil. They are primarily used to prevent and combat soil erosion, which increases the longevity of land. Finally, crop rotation is the simple process of rotating which crops are planted in a field every cycle. The idea is that, by planting different crops, farmers can increase soil health; for example, growing corn consumes a lot of nitrogen, so over time the soil will be drained of the necessary nutrients to continue growing corn. But, if the farmer rotates between corn and beans, which produce nitrogen for the soil, negating the damage to the soil dealt by the corn. (Crop Rotations, 2020)

In tandem, composting boosts the yield of a crop, and cover crops and crop rotation increase the longevity of the fields. While these are excellent ways to boost the efficiency of crop fields already in use, there still remains the issue of mitigating further damage to the forests. This is a complicated problem to find a solution for, and most importantly for now would be to focus on boosting our current cultivation, and legally protecting forests. (Foley, 2011) Some ways to protect forests include leveling legal regulations and protections onto forests to prevent further deforestation, and legally recognizing the indigenous peoples who live in these rainforests.

That's not to say the individual can't make a difference. One of the best ways to combat deforestation is to starve out deforestation fronts, financially speaking. Making sure not to support companies that benefit from deforestation, and to only buy responsibly sourced products, is a great way to contribute as an individual. So is eliminating foods that contribute largely to deforestation from one's diet; beef, soybeans, and palm oil are all major contributors to deforestation, and so limiting consumption of these products, or outright removing them from your diet is a way to help. Taking action like this will tell large companies that deforestation isn't negotiable. (10 Things You Can Do, 2020)

In summary, deforestation is terrible for both the environment, and animals that make forests their hope. Further deforestation will drive many more species to extinction, and devastate the planet's biodiversity. To prevent it, it is our job as a society to protect our forests fiercely. Individually, we must cut out products that are cultivated through deforestation, and boycott companies that profit from deforestation. At the same time, we must shift to sustainable agricultural practices, and pressure representatives to level legal protections onto the rainforests. If we as a society can enact these changes, then we can save the rainforests, and the lives of millions, human or animal alike.

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