

Major causes of ecosystem loss and struggles of species rehabilitating

[Science](#), [Biology](#)



Over the last few decades, due to our massive leaps in progress the human race has been giving less and less attention to the environment that sustains us. This has caused unprecedented losses in the flora and fauna all around the world. The two main reasons for this are the ecosystem loss which in turn causes a biodiversity loss. Ecosystem loss- Ecosystem loss occurs when a single region is cut down for either resources or space. This can further lead into massive consequences. Biodiversity loss-Biodiversity loss is the death of many species due to the factors and consequences of ecosystem loss.

A few of the major causes are:

- Habitat loss
- Pollution
- Global Climate Change
- Illegal wildlife trade

Over-exploitation for Commercialization

Research that was conducted by these teams show that biodiversity, along with many other factors is linked to ecosystem loss. The two main areas where the connections between ecosystems and the biodiversity have been the productivity of the region. Productivity basically means the biomass production from the species inhabiting that region. The research shows that more diverse ecosystems thrive much more than their counterparts and are also known to be stable and adaptable.

No change from the human side of the problem

Human progress is a major cause of cause for biodiversity loss. Habitat Destruction- Humans need more space due to higher quantities of factories, and are invading the regions of animals, killing off thousands of species at the same time. Overpopulation Over harvesting Pollution

Some experts estimate that around 30% of all species on earth will be extinct by 2050. According to the International Union for Conservation of Nature (IUCN), globally about one third of all known species are threatened with extinction. Even it is estimated that 25% of all mammals will be extinct within 20 years. Even if a small element of an ecosystem breaks down, the whole system's balance is threatened.

Yet even with this knowledge humans continue with the habitat destruction for their own personal gain. Although, on some small scale, it should be recognized that humans are still going through their industrialization phase and are in need of excess space and rare or common resources in abundance to fulfil their needs and wants. But it should also be stated that these last few decades, the conquest for more resources has been launched more for our "wants" than our "needs".

Biodiversity loss can lead to worse conditions for humans as well, since it sets off a cascade of disturbance due to the nature of the problem. Entire species die out leaving that region unbalanced. Biodiversity loss has a massive negative reaction to the ecosystem as well. Studies conducted during the last 2 decades have shown that an ecosystem with a higher

emphasis on biological diversity within its species is known to be more productive.

These small imbalances can affect us as well. An example is- suppose a region with agriculture has lost a lot of its biodiversity due to human populace, that would lead to the crops being put in an unfamiliar place in the food chain, and not allow for proper balance. In some cases this can lead to the plant being diseased causing less influx of income, affecting the humans. This shows that even if something doesn't directly affect us, indirectly everything can. In terms of a national scale, agriculture is the most basic and starting place for income. If an event like this occurs (and modern research proves it highly possible) it could affect the entire nation's economy, and can ripple into other economies via trades of import or export. This is not just in theory, these problems are in effect right now.

There is an implementation of afforestation in countries with mostly agricultural income. One example is the project taken by the World Bank with the " Afforestation of Degraded Agricultural Land Proto-Carbon Project" in Romania. Although, in general, this was only a moderate success in terms of it's targets, relatively, it was a huge step in the right direction for biodiversity rehabilitation. Romania is a country that gets most of its finances by agricultural processes, but the forestry in Romania accounts for only 35% of the land. This project needs a minimum of US\$ 16 mil, but it has already managed to reduce CO2 emissions by 198855 Kg and have already accomplished their goal of the stabilization of degraded sandy agricultural lands, which will massively benefit Romania's economy.

Some of the failed ventures are the target set by the 2002 Convention on Biological Diversity. This was due to a plethora of reasons such as the unsustainable nature of biodiversity rehabilitation, unable to get population on board, etc. And this doesn't just affect our long term economy goals, it causes ripples in short term economy. Although not as massive as the aforementioned long term, some import/export trades will be in lesser of our favor. This is due to the fact that illegal acts such as poaching have no tax, and our GDP would go down, since more money would go out, than in.

The main reason humans don't stop causing extinction is because they are ignorant. Humans still don't understand the full gravity of the situation we are in. Most people think it's just a few species going extinct, but the truth is that there are thousands of different species are going extinct everywhere. But a major change needs to be followed otherwise we can't improve ourselves. Another reason is laziness. Nowadays, we have started to take luxuries for granted and that is why resources are burning up so quickly. This also the reason why it would be harder to stop ecosystem loss, even when the majority of a populace knows about this problem.

Massive difficulties when rehabilitating endangered species

A species only way to increase in population is to reproduce and create more and more offspring to continue on. There is no way around this problem.

Humans have tried to create artificial replications of different species, but due to complications that arise because of its unorthodox nature (such as infertility, anomalous genes, social lacking) could not continue with such methods. But since there are only a few hundreds of within those species,

bringing it back to a stable and sustainable number is a difficult and slow process. That is one of the main reasons for the difficulty in rehabilitating a species. We have started to take steps to prevent any more extinction, but still thousand of species die out every day. Tigers are one of the most endangered species due to poachers and we have managed to stop most of it, but it is still in decline.

Again this loss in species would cause a biodiversity loss, but that is not all. Even with new initiatives are being set up to reduce extinction, especially for tigers (due to their popularity), the rate of extinction has barely subsided.

Tigers like these are all extinct

- PANTHERA TIGRIS BALICA
- PANTHERA TIGRIS SONDAICA
- PANTHERA TIGRIS VIRGATA

This decline is caused only by people. Although initiatives such as the GTI have created sanctuaries for the tigers, it is not enough to cope with the already lost lives and species and the amount that are still killed by poaching, climates and the deforestation of their natural habitat.

Case study-

In the years 1900 to 1990 the tiger population in India plummeted. This is due to the fact that these years were the years where tiger population had no relevance and the poachers had a lot of leeway in hunting. The world was going through the industrialization phase as well, so the effort was not present to stop poaching. Also humans needed more place for factories, so the tigers home was cut down. There are many reasons why the tiger is

important. Charismatic large carnivore at the apex of the food chain Acts as an umbrella species for conserving the biodiversity of forested ecosystems
Aesthetic, Ecological, Economic, & Ethical

At the rate we are deteriorating it is probable that we will soon reach a time when permanent and irreversible damage could be done to the ecosystem. As I stated before it is incredibly difficult to rehabilitate even a single species. To this date we do not have a viable method to rehabilitate an entire ecosystem. But we have already started to deteriorate ecosystems with biodiversity loss, pollution, Global Climate Change, etc. If we want to stop ecosystem loss, we really need to change ourselves.

Possible Courses of Action

There are a few steps we can start with if we are ready to stop deteriorating our planet. Identify locations or regions with highest number of species endangered. Figure out why, and help reduce the threat. Leave native flora and fauna alone. These animals and plants have adapted to these regions. Any new stimulus, even if with good intentions, can mess the balance. Maintain wetlands by conserving water and reducing irrigation.

Reduce pollution and Global Warming

As can be seen, more than half of the steps are to just leave the natural habitat undisturbed. These regions have adapted and do not need any help or hindrance from our side. There are some other things we can do to truly help our environment. Such as plant more trees, help the already existing forests.

Conclusion

So, will it be truly possible to stop ecosystem loss before we run into irreparable harm? Well, we have managed to kill thousands of species and put a hundred more into the endangered list, but until now there has been no irreversible damage to the ecosystem. Species have died, but not all of them, so if we leave nature alone (though it may take some time), the dangers and threats can be massively reduced. All we have to do is follow the courses of action and it will be possible to stop ecosystem/biodiversity loss.

Reflection

During this exercise, I truly felt that I was learning something new. Something that I knew of but never researched farther than the surface. Ecosystem loss is quite a common topic for simple discussions, so most people feel that they know most everything to know. I also thought I knew much about this, but as soon as I started exploring the plethora of sites in this topic I understood the deep nature of this subject. Ecosystem loss is not just a straight line like- pollution from humans -> toxicity in regions -> death of animals.

It's more like a mind map. Everything is related and everything can have a ripple effect that changes everything. The melting of the snow caps can cause a change in a desert. Humans cause more climate change causing a change in both the desert and in the snow caps. That affects the animals and plants in those regions, affecting the life of the people there, thus causing a cascade of reactions.

And in the end of this project, now knowing what I know, I truly feel like I understand the world around me a little better, and from onwards, now that I know the gravity of the situation around me I can strive to help make the world a slightly better place for everybody. Humans, flora and fauna alike.