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Environment Commission

Topic 3: Actions aimed at stopping the acceleration of Species Extinction Rates and biodiversity loss as caused by human activities

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Index

1. Definition of key terms

IUCN: the International Union for Conservation of Nature. A democratic Union brings together the world's most influential organisations and top experts in a combined effort to conserve nature and accelerate the transition to sustainable development. [Source: IUCN website]

IUCN Red List: Established in 1964, The International Union for Conservation of Nature's Red List of Threatened Species has evolved to become the world's most comprehensive information source on the global conservation status of animals, fungi and plant species. [Source: IUCN Red List website]

Human activities: In an environmental context, it is the ensemble of all the activities humans do that destroy biodiversity (mining, fishing, farming, poaching, logging, hunting, etc…).

Endangered species: A type of animal or plant that might stop existing because there are only a few of that type alive. [Source: Cambridge Dictionary]

IPBES: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. The intergovernmental body which assesses the state of biodiversity and the ecosystem services it provides to society, in response to requests from decision makers. [Source: IPBES website]

Biodiversity: The number and types of plants and animals that exist in a particular area or in the world generally, or the problem of protecting this. [Source: Cambridge Dictionary]

Background extinction rate: The ongoing extinction of individual species due to environmental or ecological factors, without considering human activities. It generally happens with a steady rate in the same geological era, and is the result of normal evolutionary processes, meaning only a very restricted number of species in an ecosystem is being affected contemporarily (the normal rate we usually refer to is just one extinction per million species per year, or less).

Ecosystem: A biological community of interacting organisms and their physical environment.

Sustainable Development Goals: Goals set by the United Nations and meant to be reached by 2030, which fight to achieve a better and more sustainable future for all. They address the social, economic, and environmental global challenges faced in the 21st Century, including those related to eradicating poverty, fighting all sorts of inequality, facing climate change, contrasting environmental degradation, reaching a final objective of peace and justice.

WWF: the World Wildlife Fund. The leading organization in wildlife conservation and endangered species. [Source: WWF website]

2. Introduction

The human population has passed 7 billion, and activities such as mining, fishing, farming, poaching, logging and hunting are altering ecosystems at a rate defined as “unprecedented in human history”. This, combined with the issue of global warming, is posing a serious threat to many wildlife species inhabiting our planet, to a point where the endangered species list can count up to 41,415 species according to the IUCN. Mammals, birds, fish, insects, and plants are considered at risk and fighting for their survival against humans damaging the environment. Not only that, but the background extinction rate seems to be rising, even if minimally, which still constitutes a problem.

Humans polluting the planet are no help to the environment; on the contrary, they contribute to the acceleration of many habitats’ decay, such as marine habitats. One may not be new to the issue of sea pollution, and most certainly knows about the harms shipping provides to marine ecosystems. It is fish, cetaceans and birds who are paying the consequences of such human activity: fish and cetaceans by living in contaminated waters, and birds by eventually being stuck in oil stains on the sea surface, leading to the inability of flying and in many cases dermal breathing. A clear example of habitat decay is the Great Barrier Reef.

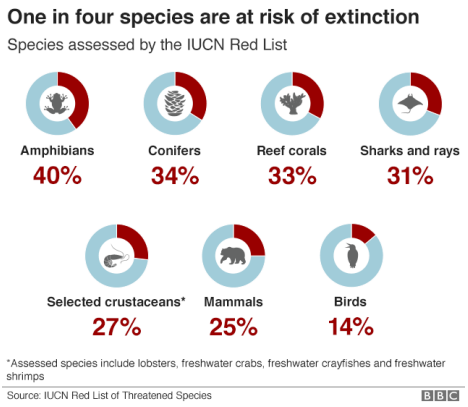
The Great Barrier Reef's conditions then and now

This Extinction Rate crisis has also resulted in the operative NGO WWF writing several reports on the issue, alarming all of the members of the Environmental Commission and all of the members of the biologist community, declaring a state of an immediate emergency. Research shows that a very consistent number of species is at risk: as an example, the UN has released a report in which it was declared that 1 million species over 8 million existing can be considered endangered, with a percentage of 12.5%.

3. Background information

Our planet is experiencing the sixth wave of all species' extinction in the past half-billion years; scientists sustain this is the worst mass extinction in the history of Earth, after the disappearance of dinosaurs 65 million years ago.

However, unlike dinosaurs, it is humans who destroy animals' and plants' habitats in order to make space for major industrial activities, such as mining and farming that have caused the wave we are living in. This resulted in the UN declaring that more than a million species are at risk, and in the IUCN writing a list indicating the 41,415 most endangered species. Furthermore, the IUCN has declared that roughly one out of four species are at risk of extinction, as seen in the image below.



IUCN graphic on endangered species (source: BBC)

According to the UN report on Species Extinction Rates, the statistics gathered are to say the least terrifying for biodiversity. To begin with, the total number of plant and animal species on Earth (including insects) can count up to roughly 8 million; however, among these 8 million species, up to 1 million have been threatened with extinction, which is proceeding with a frightening rate, and many of these endangered species can face this tragedy within decades.

The abovementioned extinction rate, compared to the average over the last 10 million years, is tens to hundreds of times higher, and constantly and relentlessly accelerating; this is, needless to say, caused by human activities, granted that human evolution over the last 10 million years has left little space to the wellbeing, proliferation and evolution of other living species. Humans destroying entire ecosystems has led approximately 5.9 million terrestrial species with insufficient habitat for

long-term survival without habitat restoration, to share their places of diffusion with over 500,000 (roughly the global 9%) other species that have fled from inhabitable areas and sought a new environment to live in. This phenomenon was observed when scientists revealed that the environment has undergone a reduction in global terrestrial habitat integrity by 30%, this being caused by habitat loss and deterioration. However, keeping in mind that due to habitat loss and deterioration many species have been declared at risk, only the 25% of them, including terrestrial, marine and freshwater, invertebrates, vertebrates, and plants have been studied thoroughly or at least in a sufficiently detailed manner. What is certain is that over 40% of the whole amphibian group is now at risk of extinction, and that over 33% of marine mammals is considered to be threatened. Reeves forming corals, sharks and affiliated have reached a risk peak of nearly 33% endangered species, while the insect group can count up to approximately 10% of such species on the list. Compared to the past, human activities have driven at least 680 vertebrate species to extinction since the 16th century, not to mention that roughly 560 domesticated breeds of mammals (10% of the whole category) were declared extinct by 2016, while at least 1,000 more species are threatened nowadays. Moreover, still by 2016, 3.5% of domesticated breed of birds were extinct. These two facts provide a clear signal that the number of native terrestrial species is fading; in fact, since 1900, there has been a decline of over 20% in the abundance of such species in major terrestrial biomes. Furthermore, over 6% of hoofed mammals (ungulates) are now considered to be extinct in the wild or surviving in captivity without conservation measures.

Climate change, in addition, may have already remarkably and negatively impacted on terrestrial flightless mammals and threatened birds, with a proportion of 47% and 23%, respectively. Moreover, there has been a 70% increase in numbers of invasive alien species since 1970, with a diffusion in 21 countries, which actually detain detailed records.

4. Major countries involved

All the States from all over the globe are experiencing the threat of species' extinction. However, on some Countries' territory, according to the IUCN, many endangered species are more frequently present than in other States. The following list is the top five Countries with most endangered species on their territory:

- **Ecuador** (2,301 species), with species widely ranging from plants to animals, e.g. aloysia dodsoniorum, abarema killipii, Amazon giant glass frog and American crocodile. This is caused by habitat destruction after human activities, such as cattle ranching, logging, oil extraction, mining, subsistence farming and hydroelectric dams.
- The **U.S.** (over 1,300 species), with mostly animal species, e.g. Florida panther, Bryde's whale, monarch butterfly and lesser prairie chicken, mainly due to urbanisation, pollution, deforestation, overhunting and overfishing, and habitat fragmentation.
- **Malaysia** (1,226 species), with the peculiar example of the Sumatran rhino, in fact there is only one last female exemplar in this Country; Malayan tiger, Bornean elephant and Borneo

orangutan are other endangered species to keep an eye on. Extinction in Malaysia is caused by human activities such as illegal hunting, isolation and species themselves' reproductive problems.

- **Indonesia** (1,206 species), with species such as, but not limited to, the Sumatran rhino, the Sumatran tiger, the Javan blue-banded kingfisher and the Mahakam dolphin being endangered by wildlife trade and habitat loss and degradation.
- **Mexico** (1,074 species) with species ranging from plants to animals, e.g. the Elkhorn coral, the brown sea cucumber, the leatherback sea turtle and the scarlet macaw. Extinction in Mexico is caused by poaching, illegal trade, habitat loss, sea acidification and overall climate change, with the Mexican government failing to enforce laws on the preservation of biodiversity.
- Other Countries can be found in the top ten: we are talking about **India**, **China**, **Brazil**, **Tanzania** and **Australia**. Each of these States has more than 900 IUCN Red List species within their territory.

Of course, the above-mentioned Countries' nearing States cannot be exempted from the counting, as they do present a similar geomorphology and ecosystem to the top ten Nations.On the other hand, many States from all the Continents that were not previously mentioned still have to come to terms with some serious problems of species extinction. Below is a list of some of the most recently extinct species and their used-to-be places of diffusion:

- Northern White Rhino (**Sudan**), because of poaching
- Western Black Rhino (**Cameroon**), mainly because of poaching, but also due to sport hunting and habitat loss
- Passenger Pigeon (**North America**), because of humans feeding on them, and in order for humans to make space for agriculture, destroying passenger pigeons' natural habitats: forests and acorns
- Pyrenean Ibex (**Spain**), probably because of poaching and diseases, but also because of the inability for this species to compete with other animals on the same territory (Darwin's law of natural selection)
- Pinta Island Tortoise (**Pinta Islands, the Galápagos'**), because of fishing
- Baiji White Dolphin (China), because of fishing, building of dams and industrial pollution
- Tasmanian Tiger (Australia, Tasmania, **New Guinea**), because of climate change, diseases and extinction of prey species

5. UN Involvement

As previously mentioned, in May 2019, the UN released a report called "UN Report: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating'". Its aim is to tackle the issue of the acceleration of Species Extinction Rates and biodiversity loss, while claiming that more than a million species are now running the risk of becoming endangered.

Animals' extinction and plants extinction can cause severe damage to our lives and, quoting the report, "Ecosystems, species, wild populations, local varieties and breeds of domesticated plants and animals are shrinking, deteriorating or vanishing. The essential, interconnected web of life on Earth is getting smaller and increasingly frayed," said Prof. Settele. "This loss is a direct result of human activity and constitutes a direct threat to human well-being in all regions of the world."

The report, moreover, reiterates the importance of the 17 Sustainable Development Goals written by the UN, expressing its hope for them to be effectively reached by 2030. Such Goals, more specifically Goals 12, 13, 14 and 15 tackle the issue of climate change and the issue of harmful and polluting human activities, encouraging all generations to take action in order to preserve our planet and all of its inhabitants, including animals, plants, fungi and so on.

6. Bibliography and useful links

UN Report on Species' Extinction Rate: https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/

UN Sustainable Development Goals: https://www.un.org/sustainabledevelopment/sustainable-development-goals/

IUCN Official Website: https://www.iucn.org/

IPBES Official Website: https://ipbes.net/

WWF-Endangered Species Conservation: https://www.worldwildlife.org/

WWF Reports: https://www.wwf.org.uk/reports

BBC articles on animals' extinction: https://www.bbc.com/news/topics/c88kg9wjn36t/extinction