Forum:	Environmental Assembly
Issue:	Combating the extinction of species caused by climate change
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I. Introduction

Anthropogenic climate change is increasingly being acknowledged as one of the greatest threats to biodiversity and human societies alike. Significant changes in the climate system are already being observed, and the most recent projections of future climates suggest combinations of increased average temperatures; changes in the global water cycle; increasing ocean acidity and rising sea levels; continued loss of polar ice and montane glaciers; and altered weather patterns, including changes in the frequency and severity of extreme events.[1] These threats become progressively alarming when researchers have estimated the extinction of over one-third of the Earth's animal and plant species by 2070 due to climate change, if current trends continue.[2] — a catastrophic loss that would irreversibly reduce biodiversity and alter both ecosystems and human societies across the globe. In addition to their intrinsic value, species play essential roles in ecosystems, which in turn provide vital services to humans. Climate change interacts with threats such as habitat loss and over harvesting to further exacerbate species declines. The decline of species and ecosystems can then accelerate climate change, creating a feedback loop that further exacerbates the situation.[3] The high complexity and immediate urgency of combating climate change and its affects challenges even the most advanced organizations and nations. The UN has recognized the threat of climate change, establishing organizations such as the Intergovernmental Panel on Climate Change IPCC in 1988, the United Nations Framework Convention on Climate Change UNFCCC in 1992. The International Union for Conservation of Nature IUCN, founded in 1948, sets focus on preserving nature as well as combating the extinction of animals. Still, an effective multilateral collaboration on the issue of specie extinction hasn't been accomplished as the trend of extinction continues. To adequately address this crisis we, as an international community, must come together in order to protect species and ecosystems and call for greater global cooperation.

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[1] https://www.iucn.org/theme/species/our-work/species-and-climate-change

[2] https://www.sciencedaily.com/releases/2020/02/200212150146.htm

[3] https://www.iucn.org/resources/issues-briefs/species-and-climate-change

II. Key Terms

1. Climate Change

"Climate change" means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.[4]

2. Biodiversity

Biodiversity describes the variety of species and genes in plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable. Biodiversity is an expression of the state of health of planet Earth. The greater the biodiversity, the more stable and healthy ecosystems are.

3. Eco Systems

An ecosystem is a community of living organisms in conjunction with the nonliving components of their environment, interacting as a system.[5] Natural ecosystems are “balanced” systems. This means the interactions between the different organisms that make up the ecosystem contribute to a certain stability.

4. Extinction of Species

Extinction refers to the end of an evolutionary lineage as a result of the death of all descendants. The term extinction can refer to both a population and a species. As long as populations of the same species continue to exist in other places, it is a local extinction. A biological species becomes extinct when the last individual of the species dies. As a result, its genetic information is lost and biodiversity is reduced.

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[4] https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf

[5] Tansley (1934); Molles (1999), p. 482; Chapin *et al*. (2002), p. 380; Schulze *et al*. (2005); p. 400; Gurevitch *et al*. (2006), p. 522; Smith & Smith 2012, p. G-5

III. General Overview

1. Causes of the extinction of species

Species extinction is a natural process that occurs even without human intervention. So-called mass extinctions also occurred before humans set foot on the planet. Knowledge of patterns of biodiversity over time allow for only very approximate estimates of background rates of extinction or of how fast species have become extinct over geological time. Except for the last 1,000 years, global biodiversity has been relatively constant over most of human history, but the history of life is characterized by considerable change. Even though the Species extinction can be natural process, it has drastically took turns with the history of human expansion and change of lifestyle of humans. Whenever humans colonized new continents or islands, species disappeared shortly afterwards. Before the beginning of modern times, this mainly affected the so-called megafauna, i.e. large animal species such as the mammoth or the sabre-toothed cat. Today's extinction rate affects not only this megafauna but also other animal, plant and fungal species as well as microorganisms. According to current estimates, the current extinction rate caused by human activity exceeds the natural rate by a factor of 100 to 1000.[6] There are five major causes of extinction: habitat loss, an introduced species, pollution, population growth, and overconsumption. Changes in land use, above all the transformation of natural ecosystems into industrial agricultural areas and urban regions, are considered to be the most important reason for the extinction of species. Global warming is a growing threat to biodiversity because the speed of climate change does not match the speed of evolutionary adaptations. Climate change forces some species to move to areas where temperatures are suitable for them. Sometimes, temperature changes also trigger changes in migration and reproductive behaviour, for example in birds. Reproductive signals may come at an inopportune time, for example if the necessary food for the offspring is still missing in a habitat or has been consumed by other animals.

The rapid loss of biodiversity has many causes, such as agricultural and industrial expansion, pollution, climate change, and unsustainable patterns of consumption and production. Many countries emphasized the link between biodiversity and the economy, highlighting for instance how sustainable food systems depend upon the biodiversity of agricultural crops, fisheries, livestock, and forests. The rise in the temperature of oceans

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[6] https://www.bpb.de/gesellschaft/umwelt/anthropozaen/256780/artensterben

has a devastating impact on coral reefs. Burning fossil fuels and deforestation are drivers of climate change leading to species extinction and reduction of nature's resilience. The decline of pollinator populations around the world is an alarming indicator of biodiversity loss that has catastrophic implications for food security in the near future. The least developed countries are likely to suffer the worst of these effects. Landlocked developing countries noted suffering from deforestation and land degradation, with limited capacity to deal with economic and social shocks, and called for a renewed commitment to adopt holistic and equitable approaches to sustainable development.[7]

2. Impact of the extinction of species on humans

Biodiversity loss and ecosystem degradation are currently among the top threats facing humanity. As the impacts of climate change are becoming more visible, biodiversity loss will also become pervasive and ultimately devastating. If current trends continue, the Earth could lose the natural wealth of its ecosystems, which would in turn jeopardize global food security, water supplies, and livelihoods; weaken human ability to fight diseases and face extreme weather events; and exacerbate geopolitical tensions and conflicts. Such impacts of biodiversity loss and degradation are already being seen around the world. The emergence of deadly diseases such as HIV/AIDS, Ebola, and COVID-19 are a consequence of human imbalance with nature and demonstrate the intimate interconnection between the health of the planet and human health. There is an urgent need to realign humanity's relationship with nature in a more balanced and sustainable way. The recovery efforts from the COVID-19 pandemic present an opportunity to emphasize actions to protect biodiversity and build a more sustainable, resilient world. Around 1 million animal and plant species are threatened with extinction, many within decades, according to the 2019 Global Assessment Report on Biodiversity and Ecosystem Service.

The average abundance of native species in most major land-based habitats has fallen by at least 20%, mostly since 1900. More than 40% of amphibian species, almost 33% of reefforming corals and more than a third of all marine mammals are threatened. The picture is less clear for insect species, but available evidence supports a tentative estimate of 10% being threatened. At least 680 vertebrate species had been driven to extinction since the 16th century and more than 9% of all domesticated breeds of

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https://www.un.org/pga/75/united-nations-summit-on-biodiversity/

mammals used for food and agriculture had become extinct by 2016, with at least 1,000 more breeds still threatened.[8] In addition to their intrinsic value, species play essential roles in ecosystems, which in turn provide vital services to humans. Climate change interacts with threats such as habitat loss and over-harvesting to further exacerbate species declines. The decline of species and ecosystems can then accelerate climate change, creating a feedback loop that further exacerbates the situation.[9]

3. Challenges and Future Concerns

Climate change poses a fundamental threat to the places, species and people's livelihoods. To adequately address this crisis we must urgently reduce carbon pollution and prepare for the consequences of global warming, which we are already experiencing. While many countries reiterated their willingness to continue to protect, conserve and restore their natural resources, some said they would do so while considering the need to boost their economies and provide for the livelihoods of their people. Several mentioned difficulties in fully implementing their biodiversity strategies due to conflict and lack of resources.[10] Other challenges are the various effects of the extinction of species and loss of biodiversity on different income groups. "Recent advances in understanding the causes of poverty, the sources of economic growth, and the measurement of human well-being, have re-emphasized the role of natural capital in human development: people, particularly rural poor, need secure access to productive ecosystems as well as the security of a healthy environment in order to create and sustain their livelihoods. The majority of the world's poor people continue to live in rural areas. The World Bank estimated recently that around 75% of the world's poor people reside in rural space and that the rural poor will outnumber their urban counterparts for at least another generation. Rural people use many ecosystems as essential productive assets, whether on a day-to-day basis or seasonally. Farmers who cannot afford to buy fertilizer transfer soil fertility from woodlands to their fields, either directly through litter harvesting or through using manure from browsing livestock. In African dryland farming systems, where seasonal food shortages are common, dry-season flood plain grazing and fisheries, and the collection and sale of non-timber forest products provide a lifeline during times of need. Natural resources are thus a key element of the risk management strategies of the rural poor. Local communities should

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[8] Nature's Dangerous Decline 'Unprecedented' Species Extinction Rates ,Accelerating' find it

[9] https://www.iucn.org/resources/issues-briefs/species-and-climate-change

[10] https://www.iucn.org/sites/dev/files/import/downloads/gov_livelihoods.pdf

be recognized and empowered as legitimate and effective stewards of natural resources and ecosystem services. The importance of natural resources in directly supporting human livelihoods is often overlooked, as the goods and services they yield are either for subsistence purposes, or traded informally, so they do not show up in national economic statistics. Work by IUCN, the World Bank and others to develop comprehensive measures of national income reveals that most conventional indicators, such as the Gross Domestic Product (GDP), significantly overstate economic growth by failing to account for changes in environmental quality. This phenomenon tends to cast large-scale development projects established at the expense of existing natural resources in an overly favorable light, as the benefits foregone due to the displacement of local livelihoods are underestimated. A whole generation of failed river valley development projects that promised food security but yielded salinization and the destruction of sustainable flood plain farming and grazing systems as well as the disruption of estuarine fisheries illustrates this problem. As a matter of course the pursuit of sustainable livelihood may involve modification and even substitution of ecosystems in some places. This can be acceptable provided it is done in a sustainable manner. Unfortunately, this has often not been the case. Governments need to apply the precautionary approach in decisions about the use and conversion of productive ecosystems.“[11] This example shows how tightly loss of biodiversity and ecosystems are intertwined with the action of humans, how they both affect each other and create a vicious cycle which becomes more difficult to escape the longer stronger measures are not taken.

IV. Major Parties Involved and their Views

1. UNFCCC

The UNFCCC entered into force in 1994, aims at “preventing “dangerous” human interference with the climate system. Today, it has near-universal membership. The 197 countries that have ratified the Convention are called Parties to the Convention. The ultimate objective of the Convention is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." It states that "such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a

[11] https://www.iucn.org/sites/dev/files/import/downloads/gov_livelihoods.pdf

sustainable manner.“ The idea is that, as they are the source of most past and current greenhouse gas emissions, industrialized countries are expected to do the most to cut emissions on home ground. They are called Annex I countries and belong to the Organization for Economic Cooperation and Development (OECD). They include 12 countries with "economies in transition" from Central and Eastern Europe. Annex I countries were expected by the year 2000 to reduce emissions to 1990 levels. Many of them have taken strong action to do so, and some have already succeeded. Industrialized nations agree under the Convention to support climate change activities in developing countries by providing financial support for action on climate change - above and beyond any financial assistance they already provide to these countries. A system of grants and loans has been set up through the Convention and is managed by the Global Environment Facility. Industrialized countries also agree to share technology with less-advanced nations.[12]

2. IUCN

The IUCN (International Union for Conservation of Nature), also known as the World Conservation Union, is an international non-governmental organisation and umbrella organisation of numerous international governmental and non-governmental organisations. The IUCN publishes numerous position papers on environmental and nature conservation issues and develops international standards, such as the Standard for the Identification of Key Biodiversity Areas[13]. The IUCN, founded in 1948, sets focus on preserving nature as well as combating the extinction of animals. It has observer status at the UN General Assembly and is a member of the UN Commission on Biological Diversity. IUCN is at the forefront of the global fight to save species from extinction. Its Species Survival Commission has over 9000 members, within 160 Specialist Groups. The IUCN Red List of Threatened Species™ is used to guide decision making and conservation action. IUCN provides technical expertise for conservation issues and projects.[14] “IUCN's Global Species Programme, in collaboration with IUCN's commissions and members, is working hard to ensure that the complexities of the impacts of climate change on species are appropriately considered in conservation activities, and that human responses to climate

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[12] https://unfccc.int/process-and-meetings/the-convention/what-is-the-united-nations-framework-convention-on-climate-change

[13] https://www.iucn.org/resources/conservation-tools/world-database-of-key-biodiversity-areas

[14] https://www.iucn.org/theme/species

change consider and address how they can minimize the impacts to the biodiversity upon which they depend."[15]

3. IPBES

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services is an independent intergovernmental body established by States that provides scientific policy advice to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development. The IPBES is a UN organization. It was established in 2012 by 94 Governments and currently has 137 member states. A large number of NGOs, organizations, conventions and civil society groupings also participate in the formal IPBES process as observers. The IPBES is not a United Nations body. However, at the request of the IPBES Plenary and with the authorization of the UNEP Governing Council in 2013, the United Nations Environment Programme (UNEP) provides secretariat services to IPBES.[16]

V. Previous & Possible Solutions

There have been many attempts to combat the extinction of species and loss of biodiversity. Many countries renewed their pledge for the realization of the 2050 Vision of Living in Harmony with Nature. There was a wide reiteration of commitment to preserve land and marine ecosystems, reduce pollution, increase climate mitigation and adaptation, fight land degradation and halt biodiversity loss.[17] IPPC, the International Plant Protection Convention, is an intergovernmental treaty signed by over 180 countries, aiming to protecting the world's plant resources from the spread and introduction of pests, and promoting safe trade. The Convention introduced International Standards for Phytosanitary Measures (ISPMs)[18] as its main tool to achieve its goals, making it the sole global standard setting organization for plant health.)

Species are critical for a healthy planet, but growing pressures from human activities are putting them at risk of extinction. Habitat destruction, invasive species,

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[15] https://www.iucn.org/theme/species/our-work/species-and-climate-change

[16] https://www.ipbes.net/about

[17] https://www.iucn.org/sites/dev/files/import/downloads/gov_livelihoods.pdf

[18] https://www.ippc.int/en/core-activities/standards-setting/ispms/

overexploitation, illegal wildlife trade, pollution and climate change are threatening the survival of species worldwide. These are all issues that need to be addressed which makes the fight against the extinction of species gradually more difficult. Global warming is projected to commit over one-third of the Earth's animal and plant species to extinction by 2050, which stresses the urgency to stop global warming. But looking at the the causes above mentioned, highlights the need to look at more than just the grand scheme of global warming. One out of many solution that help preserving biodiversity is investing in land restoration as deforestation and desertification pose major challenges to sustainable development and have affected the lives and livelihoods of millions of people. Forests are vitally important for sustaining life on Earth, and play a major role in the fight against climate change. And investing in land restoration is critical for improving livelihoods, reducing vulnerabilities, and reducing risks for the economy. This is a small step toward a brighter future for species but global warming is the issue at hand that needs to be stopped.

VI. Conclusion

"Biodiversity and nature's contributions to people are our common heritage and humanity's most important life-supporting 'safety net'. But our safety net is stretched almost to breaking point," said Prof. Sandra Díaz (Argentina), who co-chaired the [IPBES Global] Assessment with Prof. Josef Settele (Germany) and Prof. Eduardo S. Brondízio (Brazil and USA). "The diversity within species, between species and of ecosystems, as well as many fundamental contributions we derive from nature, are declining fast, although we still have the means to ensure a sustainable future for people and the planet."[19] There is an urgent need to combat the extinction of species in order to protect and maintain the Earths natural wealth of its ecosystems so global food security, water supplies, and livelihoods are ensured. This calls for deep partnerships within and beyond the United Nations system. All member states are called upon to work together to tackle this issue.

[19] https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/

VII. Questions to Consider

- Where (in what already implemented measures/laws, in what areas, etc.) can we reinforce and strengthen the fight against global warming?
- What alliances can we make or strengthen in order to intensify the combined fight against global warming?
- How is your country affected by the extinction of species?
- How is your country taking measures to prevent the extinction of species?
- How can research on the extinction of species be supported?
- What national legislation governs to protect species in your nation?
- What can (any specific) member state implement right now in order to slow down the extinction of species?
- What can be done to preserve Eco systems and Biodiversity?
- How can the extinction effect on indigenous and local knowledge, particularly addressing issues relevant to Indigenous Peoples and Local Communities.
- How can your government collaborate with indigenous communities to preserve biodiversity?
- How can the collaboration between corporations, governments, and international organizations be expanded?

IIX. Sources for Further Research

- https://www.iucn.org/sites/dev/files/import/downloads/gov_livelihoods.pdf
- https://www.iucnredlist.org
- https://www.un.org/pga/75/wp-content/uploads/sites/100/2020/11/Summary-Biodiversity-Summit-4-November-clearedFINAL-002.pdf

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