

EARTH COMMISSION EXPLAINER BRIEF

BIOSPHERE

A THRIVING BIOSPHERE – “LIVING NATURE” – OR BIODIVERSITY IS CRUCIAL TO ENSURE A SAFE AND JUST FUTURE FOR ALL

Our biosphere includes people and all other living organisms that we directly or indirectly interact with. The biosphere is our common heritage that sustains human existence. How we treat this fragile sphere impacts our own wellbeing and ability to thrive.

Human activities such as deforestation, urban development and agricultural expansion threaten planetary health and global ecosystems, endangering the essential foundation that provides for our lives, wellbeing and economies.

WHAT ARE EARTH SYSTEM BOUNDARIES?

The groundbreaking Earth System Boundaries (ESBs), identified by the Earth Commission, are scientifically quantified safe and just limits for climate, freshwater, biodiversity, nutrient cycles and aerosol pollutants.

They delineate a long-term corridor for humanity on a global scale – *a safe and just zone for people and planet*. By operating within these limits, we can maintain a stable and resilient planet and ensure access for everyone to the resources necessary for a dignified life.

Earth System Boundaries are hard limits. Even temporary overshooting of some of the boundaries can permanently damage the planet's critical systems, causing irreparable harm to life.

Earth System Boundaries can guide action towards a safe and just future for every human and the planetary web of life we rely on.

- *Safe* boundaries ensure stable and resilient conditions on Earth, within the Holocene range of variability, that we know can support human development.

- *Just* boundaries minimize human and nature's exposure to significant harm. In addition, the Earth Commission quantified minimum levels for access to resources for a dignified life and freedom from poverty for everyone.

WHAT DOES THE EARTH COMMISSION SAY ABOUT BIODIVERSITY?

Unsustainable* practices such as logging and agricultural expansion are leading to irreversible changes in the biosphere. Excessive greenhouse gasses have changed weather patterns and temperature, which also significantly impact biodiversity and its contributions to human wellbeing. Intensive human use of land - both in urban regions and in agriculture - have left little space for local ecosystems to provide critical services for life, such as pollination, water quality regulation, pest and disease control, and the proven health and mental health benefits provided by access to nature.

Conservation efforts to preserve intact ecosystems, wilderness and protect species must be stepped up to also address the vital functional

role of biodiversity in working landscapes that support livelihoods, food and fuel production, such as cities, forest plantations and agricultural lands.

**The main direct drivers of biodiversity loss are: land use change, exploitation of natural resources, pollution and the spread of invasive species, and global warming.*

WHAT ARE THE KEY INSIGHTS WE CAN DRAW FROM THE EARTH SYSTEM BOUNDARIES FOR BIODIVERSITY?

- The Earth Commission has quantified safe and just Earth System Boundaries for Biodiversity for both natural ecosystems and working landscapes. *Natural ecosystems* refers to areas of largely intact nature with only limited human interference. *Working landscapes* refers to all human-dominated ecosystems, including urban areas, forest plantation and or agricultural land. Both are critical.
- The two Biodiversity boundaries complement each other and quantify how to maintain nature's benefits for all, conserve natural resources for future generations and maintain ecosystems in a healthy and sustainable state.
- The safe and just Earth System Boundaries for biodiversity - natural ecosystems and working landscapes - are the same, meaning that in this assessment there is no difference between the safe and just limit for each boundary.
- *The safe and just boundary quantified for natural ecosystems requires 50–60% of the global land surface be covered with nature that is largely intact* in order to ensure critical Earth system ecosystem services. including carbon and water cycles regulation and halting species extinction.
- *We are already outside of the safe and just boundary for natural ecosystems. 50–60% of natural ecosystems are needed for a safe and just planet. Today only 45–50% of Earth has natural ecosystems.*
- *The safe and just boundary quantified for working landscapes indicates that all working landscapes require at least 20–25% semi-natural habitat per square kilometer for critical local ecosystem services to be secured.*

This will help ensure access for all people to local ecosystem services.

- *We have already breached the safe and just boundary for working landscapes.* Globally, only about one-third of working landscapes have 20–25% semi-natural habitat per square kilometre that support human well being

WHAT CAN YOU DO?

Protecting the biosphere requires focussing beyond conservation and biodiversity health, and working to restore the benefits that biodiversity provides to human wellbeing. Steps in this direction can be achieved by reducing the drivers, or root causes, of biodiversity destruction, which requires innovation, redistribution and an end to overconsumption.

We must take urgent action to ensure we move within the *safe and just boundaries for both natural ecosystems and working landscapes*. This means conserving and restoring biodiversity and its benefits while ensuring just access for all people.

Efforts to halt and reverse nature loss in line with the Global Biodiversity Framework must be urgently prioritized and accelerated. *The safe and just boundary for natural ecosystems provides further scientific evidence for the need to halt and reverse nature loss as prescribed by the Kunming-Montreal Global Goals.*

The Earth Commission is part of a bigger system of changemakers: the Global Commons Alliance, which created the Science Based Targets Network (SBTN) to translate scientific boundaries into science-based-targets (SBTs). Businesses and decision makers can work with SBTs for Nature as part of their commitment to stay within the safe and just boundaries, across all sectors of the economy.

The ambition of the first phase of science-based targets for nature, just released by SBTN, is aligned with the Earth Commissions scientific findings. Building on existing environmental knowledge and aligned with local ambitions, these targets, including science-based targets for climate, will put businesses, cities and policy-makers on the right path so that we move towards a safe and just space for people and the planet.

Read more at earthcommission.org