



GEM – Green Education in Media / Course 2023

Background Information (Facts, Figures and Videos)

Preservation of livelihoods and resources

Agriculture and forestry, soil fertility, soil loss

If the air continues to warm up as a result of climate change and can therefore also absorb more water, peatlands are threatened with water loss – up to 30% higher evapotranspiration compared to forests. Due to the increasing drought in the vegetation, boreal bogs could become a source of CO₂ if the rising temperatures are not accompanied by an increase in precipitation (Helbig et al. 2020). But the warmer and drier the boreal zone, the higher the chance that the peat layers of the bogs themselves will start to burn, releasing their stored carbon. According to estimates, Arctic peat alone contains between 40 and 500 billion tons of carbon (Vassander & Kettunen 2006). About a quarter of the permafrost lost in Canada over the past three decades has thawed to fire-induced processes (Gibson et al. 2018). Meanwhile, smoke and soot travel hundreds of kilometres across the Arctic, settling on surfaces covered with snow and ice and absorbing heat. Satellite images show that sea ice and snow are darker and are therefore melting faster. If water or soil is exposed, the sunlight is absorbed instead of reflected back and heats up the entire region - which in turn means warmer summers, more plant mass and therefore a higher risk of fire.

Conservation of the diversity of life (biodiversity)

Climate protection

Samaniego et al. (2018) compared to the 1.5 K Paris target, an increase of 3 K—which represents current projected temperature change—is found to increase drought area by 40% ($\pm 24\%$), affecting up to 42% ($\pm 22\%$) more of the population. Droughts become twice as frequent; Thus, due to their increased occurrence, events of this magnitude will no longer be classified as extreme. In the absence of effective mitigation, Europe will therefore face unprecedented increases in soil moisture drought, presenting new challenges for adaptation across the continent.

Climate economics

Hänsel et al. (2020) point out that less than two degrees of warming would be optimal from an economic point of view if the avoided climate damage is offset against the costs of climate protection. Researchers arrive at this conclusion using an updated form of the DICE model.

Biodiversity Loss

The age of extinction: The biodiversity crisis in numbers - a visual guide, The Guardian, 2022,



Words by Patrick Greenfield. Graphics by Lucy Swan, Glenn Swann, Paul Scruton and Chris Watson. Data and graphics research by Federico Acosta Rainis

<https://amp-theguardian-com.cdn.ampproject.org/c/s/amp.theguardian.com/environment/2022/dec/06/the-biodiversity-crisis-in-numbers-a-visual-guide-aoe> (Video)

Leadership in times of the Earth's New Normal

Leading the Charge through Earth's New Normal, World Economic Forum, January 18, 2023, Panel Speakers: Joyeeta Gupta, Johan Rockström, Roshni Nadar Malhotra, Al Gore, Gustavo Francisco Petro Urrego, Marc Benioff, Andrew Forrest, Fawn Sharp, Yo-Yo Ma, Gim Huay Neo (Video)

<https://www.weforum.org/events/world-economic-forum-annual-meeting-2023/sessions/leading-the-charge-through-earths-new-normal>

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