

WHY IS GLOBAL WARMING ABOVE 1.5°C A PROBLEM? [1/3]

TIPPING POINTS – ECOSYSTEMS

What is a tipping point? The Paris Agreement's long-term goal is "to keep the rise in mean global temperature well below 2°C and preferably limit the increase to 1.5°C". Exceeding "tipping points" is one of the main reasons why this commitment was made. Just like a tree branch can only withstand a certain amount of pressure before it breaks, some planetary systems exposed to climate change impacts may reach their tipping point and change into something different as a result.

Tipping points in ecosystems. While coral reefs are the only major ecosystem on Earth for which the 1.5°C warming will be fatal, 2°C is already the tipping point for a number of other ecosystems.

01 CORAL REEFS

These reefs are characterized by extremely high biodiversity – 25% of all marine species depend on them. They can also effectively protect the coast from sea storms, being able to absorb 97% of energy from the waves. In recent years, 50% of the Great Barrier Reef has died as a result of unusually warm water in the oceans.

If the temperature rises above 1.5°C, almost none of the current coral reefs will survive.

02 TROPICAL RAIN FORESTS

About **two thirds of the Earth's plant & animal species** live in tropical rain forests of Amazonia, Africa and Indonesia. These ecosystems face many challenges now: from logging and forest fires to changes in precipitation levels caused by the global warming.

If temperatures rise by 3 to 4°C, **large numbers of trees will probably die** in most rain forest areas. But even if the warming is less dramatic, the ecosystem may still collapse if approx. 40% of the rain forest area is lost to logging.

The temperatures in this infographic refer to global warming above pre-industrial levels. The current warming is approx. 1.2°C.

03 BOREAL FORESTS

Boreal forests (taiga) are the **world's largest ecosystem**, which covers 11% of all land. The warming will lead to longer droughts, more frequent fires, bark beetle spreading, etc. – all of these causing taiga to change into a steppe.

If the temperature rises by 3 to 4°C, **large numbers of trees** are likely to die in most of the taiga area.

04 EXTREME HEAT WAVES

Heat waves are now experienced in different locations around the planet and pose a threat for both communities and animal populations. For example, temperatures in Australia reached 45°C in January 2019, and hundreds of thousands of megabats died as a result – about one third of their population. Extinction of some species of plants or animals may cause **regional ecosystems to collapse**.

Global warming will lead to more frequent and intense heat waves. If the temperature rises by 2°C, some regions will experience deadly heat waves every year, and if it gets beyond 2°C, large areas of land may become unlivable.

