

# Preserving Biodiversity



*Consider narrowing your video's focus by concentrating on a subtheme of your topic. Listed below are just a few of the possible subthemes for videos relating human population growth to preserving biodiversity.*

## **Habitat Destruction/Fragmentation**

Habitat loss, through both destruction and fragmentation, is a primary threat to the survival of plants, animals, fungi, and microbes, all of which contribute to Earth's biodiversity. Habitat destruction results from a habitat being changed so dramatically that it no longer supports the species that originally lived there. It is often caused by, among other things, cutting down or burning trees, filling in wetlands, or mowing fields. When a habitat is interrupted or divided by new developments (roads, residential areas, dams, etc.) it's called "habitat fragmentation". Both phenomena are caused by human activity, and are happening on a massive, global scale.

## **Ecosystem Diversity**

One of the three types of biodiversity, ecosystem diversity refers to the number of ecosystems in a given area, as well as the variety of interactions among organisms within them. An ecosystem refers to all of the animals, plants, bacteria, and fungi in an area, as well as its physical components: water, soil, and climate. An ecosystem can be as large as a lake or as small as a clump of moss. Diversity among ecosystems allows for them to withstand some fluctuations and disturbances in the environment around them, but all ecosystems are threatened by the level and rate of environmental disruption caused by climate change. Health and diversity within our ecosystems leads to food and material production, advancements in medicine, and ecological services, like cleaning water and providing oxygen. These factors mean that ecosystem diversity is vital not only for the health of the planet, but for the continued survival of humanity.

## **Coral Reefs**

Although they cover less than two percent of the ocean bottom, over 25 percent of ocean fish depend on coral reefs for their survival. Coral reefs are living structures, made up of many tiny organisms called polyps. Because they are alive, coral reefs are affected by changes in their environment; pollution, unsustainable fishing practices, sedimentation, and climate change are causing large-scale destruction. The world has lost over 19 percent of its coral reefs, and another 35 percent are at risk of being lost in the next 20-40 years. Aside from their vital role in preserving the biodiversity of our oceans, coral reefs protect coastlines from storms and erosion, and provide sources of food and income for local populations.

## **Deforestation**

Forests cover approximately a third of the land area on Earth, but we are losing over 18 million acres annually. Deforestation happens through fires, clear-cutting for agriculture, ranching, and development, unsustainable logging practices, and degradation due to climate change. In addition to the estimated 15 percent of total greenhouse gas emissions that result from deforestation, removing trees also negates their ability to absorb carbon dioxide. This amplifies the negative impacts of deforestation, including its impact on global biodiversity; forests, and particularly rainforests, which are home to a vast range of plants, animals, fungi, and bacteria.

## **Pollinators**

In addition to bees, Earth's pollinators include birds, bats, butterflies, moths, beetles, and ants (and more!). There are over 1,000 plant species worldwide that humans use for food, clothes, and medicine that require pollinators to survive, which makes them crucial for both our economy and our ecosystems. Unfortunately, pollinators are suffering from various man-made changes to their ecosystems, including loss of habitat, chemical misuse, invasive plant and animal species, as well as diseases and parasites. The confluence of these factors has resulted in the loss of pollinators on a massive scale; the US alone lost over 50 percent of its managed honey bee colonies in the last ten years.

## **Extinction**

Based on previous extinction patterns, scientists have determined a "background" rate of extinction: one to five species per year. These extinctions happened due to asteroid strikes, volcanic eruptions, and natural shifts in climate. Today, it is estimated that we lose more than a dozen species per day. These extinctions are entirely man-made, caused primarily by habitat loss, the introduction of exotic or invasive species, and climate change. While it is hard to calculate exact extinction rates (mostly because we aren't sure how many species there are in the world) scientists agree that if the current extinction crisis continues, humans could put their own survival at risk. It has been suggested that the loss of biodiversity through extinction is more of a threat to human survival than climate change, as it degrades the earth's capacity to provide clean air, food, fresh water, and stable weather.

## **Invasive Species**

A species that is alien to an ecosystem is not inherently invasive. Invasive species are those that are both not native and also that cause harm to the environment around them. More recently, climate change has allowed some species to migrate into new areas, but invasive species are primarily spread through human activity, both intentional and not. For example, Zebra Mussels, which were unintentionally brought to the United States in ballast water, began by outcompeting native species in the Great Lakes and have now spread to over 29 states. Kudzu vines, which were intentionally introduced as an ornamental plant, have overgrown entire forests in the Southern United States. The vines prevent sunlight from reaching the forest floor, effectively killing the forest. Over 42 percent of threatened or endangered species are at risk primarily due to invasive species. These invasive species lower biodiversity, harm human health and the health of surrounding ecosystems, and can even cause economic damage.

## Sources

### Habitat destruction/fragmentation

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