



Rainforest Ecosystems Overview

Rainforests are the oldest living ecosystems on our planet. Some rainforests present today are more than [70 million years](#) old! These unique habitats are critical for regulating climate and supporting many forms of life.

Rainforests can be found on every continent except Antarctica. There are two types of rainforests: tropical and temperate, which both receive [79 to 394 inches of rain per year](#). Temperate rainforests have [rich soil and tall trees](#) and are located around middle latitudes where the climate is cooler due to seasonal changes. Tropical rainforests are hot and moist with rain nearly all year, and while they only cover only 6 percent of the world's surface area, they are extremely biodiverse and home to [half of plant and animal species](#) on the planet.

Not only are rainforests a habitat for wildlife and a natural wonder of the world, they also provide many resources that humans rely on and benefit from. For example, [70 percent of plants used in cancer treatments](#) are only found in rainforests. Beyond that, rainforests provide us with clean air and water, stabilize our climate and soil, and absorb solar radiation and carbon dioxide. Rainforest ecosystems have been sustainably managed by indigenous communities for many generations. Today, there are still many tribes who live off of the land in the rainforests and sustain their populations while having [minimal contact with the outside world](#).

Human impacts on the environment, including climate change, mining, agriculture, and deforestation, are impacting indigenous communities and threatening the biodiversity and health of rainforests. Each year [10 million hectares are deforested](#), which is equivalent to the size of Portugal. Furthermore, rainforest wildlife is captured and sold in illegal markets, corporations infringe on indigenous territory, and development and agriculture push illegal deforestation. With our global population estimated to reach [9.7 billion by 2050](#), we will need to find ways to sustainably use resources from rainforests while protecting the surrounding people and biodiversity.

Narrow Your Focus

The topic of rainforest ecosystems is broad and encompasses a lot of challenges, but your video can only be 60 seconds. Rather than taking on the entire topic, we recommend to focus on one part of the topic (a subtopic). **Remember to connect how human population growth impacts that challenge and offer a sustainable solution.**

We've put together a list of suggested subtopic angles (see below) you could take, and linked them to a variety of credible sources. But there are many other rainforest subtopics, and tons of other sources, so no need to limit yourself to what's included here!

As you conduct your [research](#), remember to keep a [works cited list](#) so you have that handy if your video is chosen as a finalist.

Click on the colored tiles below to navigate to information about each subtopic, or click the bottom rectangle for a planning document to help generate your own ideas!



Looking for more resources to help you plan your video? Check out the [full video project organizer](#) or the [abbreviated version, the video project guide](#).

Biodiversity

Biodiversity refers to the variety of living organisms - plants, animals, and fungi - in a particular habitat or ecosystem. Each organism plays a critical role in maintaining the balance of life by providing food, clean air and water, shelter, and medicine.

- Biodiversity in rainforest areas is at risk for exploitation from wildlife trade and trafficking, which can weaken entire ecosystems. (Source: [UN Environmental Program](#))
- There has been a 68 percent reduction in the population size of mammal, bird, fish, reptile and amphibian species on our planet over the past 50 years. (Source: [World Wildlife Fund](#)).
- Although tropical rainforests only account for 6 percent of land on Earth, they are home to more than half of the world's plant and animal species, including 40,000 plant species, 1,300 bird species, and 2.5 million different insects. (Source: [National Geographic](#))
- Human-wildlife conflict is a community and economic issue as much as a conservation issue, tying into the Sustainable Development Goal 2: Zero Hunger. (Source: [World Wildlife Fund](#))
- Globally, around 30 percent of biodiversity loss is due to land use changes, mostly for large scale agriculture. Overexploitation of rainforests' natural resources for human goods such as food, medicine, and timber results in roughly 20 percent of biodiversity loss. (Source: [The Royal Society](#))

Deforestation

Rainforests around the world are being destroyed as humans intentionally cut down forests. Land is a valuable resource, and rainforests are becoming increasingly cleared for growing food or raising livestock. Deforestation demands are also driven by the logging industry to build houses and other wood-based products.

- About one-third of the land in the Amazon rainforest has been degraded due to human activity and drought, which also increases the forest's vulnerability to fires. (Source: [The Guardian](#))
- The main causes of deforestation in the rainforest are large-scale livestock businesses, monocrop agriculture (such as soy, palm oil, pineapple, and cacao farms) and real estate development. (Source: [Community Carbon Trees](#))
- Countries outside of tropical rainforests, such as the United States, are driving demand for deforestation of rainforests by purchasing beef from companies that are accused of using illegally cleared rainforest land to raise cattle. (Source: [Washington Post](#))
- Deforestation can lead to increased runoff and pollution when tree roots are no longer able to soak up rainwater. This can lead to increased soil erosion and pollutants leaking into water systems. (Source: [Earthday.org](#))
- When trees are cut down, the carbon they store is released into the atmosphere as carbon dioxide. This contributes to the greenhouse gases which are amplifying climate change. (Source: [National Geographic](#))

Zoonotic Disease

As human activity expands into forests, we come into contact with more zoonotic diseases, which are diseases transmitted between animals and humans. Rabies, malaria, yellow fever, Ebola and coronaviruses are all examples of this. Disease can have damaging effects on both the people and wildlife in an area. It is important to understand how changing environmental conditions will affect zoonotic disease transmission in the future.

- Population density is associated with an increase in the spread of zoonotic diseases, with 68 percent of all global land experiencing human-wildlife overlap. (Source: [NewsWeek](#))
- Intensifying agricultural practices have been a cause of over half of the newly transmitted diseases from animals to humans since 1940. (Source: [Population Connection](#))
- Yellow fever, mostly spread by mosquitoes, continues to affect 200,000 people a year and is strongly linked to areas that have high rates of deforestation. (Source: [PBS](#))
- Climate change contributes to the spread of zoonotic diseases because rising temperatures can increase the reproductive rate of pathogens and foodborne diseases. (Source: [WHO](#))
- The global wildlife trade is a driver for zoonotic disease transmission. (Source: [World Wildlife Fund](#))
- Economically disadvantaged populations, especially those who raise livestock, are more at risk of coming into contact with a zoonotic disease. (Source: [NCBI](#))

Indigenous Communities

Indigenous people have lived in harmony with the rainforest for many years. While Indigenous communities are known for their [rich culture and role in stewarding the rainforest](#), they also face high levels of poverty, climate change impacts, and threats to their safety and livelihood. As many industries target the rainforest for its high levels of natural resources, indigenous communities face the impacts of [environmental injustice](#).

- Indigenous people protect roughly 80 percent of the planet's biodiversity while stewarding at least 25 percent of the carbon stored in tropical and subtropical forests worldwide. (Source: [World Economic Forum](#))
- Despite their important role in caring for ecosystems, Indigenous communities received less than one percent of the funding from \$2.7 billion USD of international aid dedicated to rainforest preservation. (Source: [Vital Signs](#))
- Indigenous populations who are isolated from the rest of the world are extremely vulnerable to disease spread. (Source: [Macalester](#))
- The rainforest land of Indigenous people is near or on the location of more than half of the minerals and metals necessary for transitioning to renewable energy systems. (Source: [Regnskog](#))
- In the Amazon rainforest, Indigenous land is being used without permission and rivers are polluted with mercury. An estimated 20,000 gold miners illegally mine on protected Yanomami territory. (Source: [OHCHR](#))

Ecosystem Services

As an ecosystem, the rainforest provides an abundance of naturally occurring resources: clean air, clean water, habitats, building materials, medicines, and more. As the human population grows and alters the landscape, there are consequences that affect the health of an ecosystem and what it is able to provide, which can impact wellbeing and economics.

- There are many everyday goods and products sourced from rainforests, including fine woods for construction and decor, paper, spices, minerals, food, seeds, clothes, fibers, and more. (Source: [Learn at Chester Zoo](#))
- The Amazon rainforest has an abundance of plants used in making medicine. 25 percent of modern Western drugs are derived from the rainforest. (Source: [Earthcubs](#))
- Globally, rainforests store around 25 percent of the planet's carbon, which helps regulate the levels of greenhouse gasses in the atmosphere. (Source: [Rainforest Trust](#))
- Rainforests are an essential part of the water cycle by adding water to the atmosphere - a process called transpiration. Water is also filtered through tree root systems, keeping pollution and debris from entering waterways. (Source: [Rainforest Alliance](#))
- Healthy rainforest ecosystems can mitigate the effects of extreme weather events such as flooding, landslides, hurricanes, cyclones, etc. (Source: [Legacy Landscapes](#))
- Bioeconomies based on the services of rainforest ecosystems in the Brazilian Amazon could generate \$8 billion by 2050. (Source: [World Research Institute](#))

Globalization

As the population grows and technology advances, the number of people and goods traveling the world has expanded rapidly. This impact on rainforests can be seen in a number of different ways: deforestation for agriculture and goods, illegally traded wildlife, increased CO2 emissions, and more.

- In 2026, it is estimated that Brazil (home of the Amazon rainforest) will account for nearly half of the world's sugar and soybean exports, driven by the expansion of agriculture. (Source: [WEF](#))
- International trade and globalization have led to the spread of invasive species throughout many ecosystems. Invasives can alter ecosystems and outcompete native species. (Source: [ACEER](#))
- Illegal wildlife trafficking is the fourth most lucrative global crime, valued at up to \$23 billion USD each year. (Source: [WEF](#))
- As demands for fuel and food rise, oil and agriculture companies have violated environmental and human rights, disproportionately affecting Black, Brown and Indigenous communities. (Source: [Rainforest Action Network](#))
- Illegal road expansion into protected rainforest areas, fueled by the industrial expansion of oil, gas, timber and mineral projects, are increasingly common in the Amazon rainforest and accelerate destruction and degradation of natural resources. (Source: [Yale](#))



Generating Your Own Subtopic

Coming up with your own subtopic can be intimidating if you don't know where to start. To help, we've created the following list of questions and reminders to help you formulate your own subtopic. Ask yourself these questions, and as you answer them, notice what stands out or find repeating trends in your answers. Those are what you should focus on to generate your subtopic!

Probing questions

1. Have you noticed anything related to this global topic in your community? If so, how does what is happening locally connect to challenges globally?
2. Does this topic connect to an area of interest to you? If so, how does it connect?
3. What does this topic first bring to mind when you think about it? What emotions does this topic make you feel?
4. What do you already know about this topic? What do you want to know?
5. Have you read any books or articles, or listened to podcasts about this topic? If so, what did you learn from them?

Keep in mind that the subtopic you choose should be:

- Connected to human population growth - *how does population growth impact it?*
- Focused on a single problem or issue
- Researchable using primary and/or secondary sources
- Feasible to answer within the timeframe of 60 seconds
- Specific enough to answer thoroughly