Chapter 1: Is Biodiversity Loss a Serious Problem?

Chapter Preface

Yes: Biodiversity Loss Is a Serious Problem

Global Biodiversity Losses Are Approaching Tipping Points of No Return

Secretariat of the Convention on Biological Diversity

International efforts to significantly slow biodiversity loss have failed, as biodiversity in species, genes, and ecosystems have continued to decline. Dramatic biodiversity loss could push ecosystems beyond tipping points to threaten human livelihoods and food supplies.

Species Loss Is a Silent Crisis for the Planet

David Suzuki

Although awareness about climate change is growing, government leaders pay little attention to the potentially catastrophic extinction of Earth’s plants and animals. The recently created international Biodiversity Scientific Body should help educate people about the biodiversity crisis.

Climate Change Is Accelerating Biodiversity Loss

Anup Shah

Rapid climate change in coming years is expected to accelerate biodiversity loss. The world’s oceans are warming, leading to loss of sea ice, acidification, oxygen-dead areas, and dying coral reefs—all changes that put multiple species at risk.
Biodiversity Loss Is a Threat to Human Food Security

Paul Virgo

The loss of agricultural biodiversity poses a threat to humans and their food security. Modern agriculture increasingly relies on just a few crop species, making food supplies vulnerable to stresses like climate change, pests, and diseases.

No: Biodiversity Loss Is Not a Serious Problem

Rainforest Regrowth May Reduce the Loss of Biodiversity in the Tropics

Environment News Service

Tropical rainforests once farmed or logged are now regrowing. Some scientists claim that this regrowth may significantly reduce future biodiversity loss, while others predict that many plant and animal species will not return.

Animal and Plant Extinction Rates May Be Overestimated

Brian Handwerk

A new study has concluded that plant and animals are going extinct at a slower rate than once predicted. However, this does not change the bigger picture of massive biodiversity loss.

Environmentalists’ Claims About Species’ Loss Are Radically Misleading

James D. Agresti

According to former vice-president and environmentalist Al Gore, species are becoming extinct at a rate one thousand times greater than the natural background rate, but new data show this claim to be grossly inaccurate.

Chapter 2: Which Plant and Animal Species Are Threatened with Extinction?

Chapter Preface
Half of Earth’s Species Could Be Extinct by the End of the Century in a Sixth Mass Extinction Event

The Independent

A 2011 study found that human activities may have initiated a sixth mass extinction of Earth’s plants and animals. Half of all Earth’s species could be gone by the end of this century.

Thousands of Plant and Animal Extinctions Are Happening Faster than New Species Can Evolve

Juliette Jowit

Species extinction rates almost surely are faster than the rate at which new species are evolving. More than seventeen thousand plant and animal species are now threatened, so it is important to strengthen efforts to conserve biodiversity.

Many Important Keystone and Predator Species Are at Risk

Douglas H. Chadwick

The loss of a dominant predator can also cause a loss of richness in ecosystems. Today, most of the top carnivore predators are threatened along with other keystone species.

Climate Change Is Threatening Wild Animal Species Around the World

WWF

Wild animals around the globe are moving northwards or uphill to escape the effects of climate change. Threatened species include Arctic polar bears, Brazilian sea turtles, China’s giant pandas, African elephants, and India’s tigers.
Climate Change and Other Human-Induced Impacts May Make a Mass Extinction of Ocean Species Inevitable

Environment News Service

Climate change and other human impacts are causing a rapid decline of ocean health. Without strong action to conserve ocean environments, a mass extinction of marine species appears inevitable.

Twenty Percent of Earth’s Known Plant Species Are Threatened by Human Activities

Zachary Shahan

A recent study found that more than 20 percent of all known plant species on Earth are endangered by habitat loss caused by human activities. Tropical rainforests are particularly at risk.

The Spread of High-Yield Crops Is Depleting Agricultural Biodiversity

Fahim Nawaz

Seventy-five percent of the world’s agricultural biodiversity—the foundation of the human food system—has been lost due to the replacement of local crops and livestock species with high-yield crop varieties and improved breeds of animals.

Chapter 3: Are Human Food Production Methods a Threat to Earth’s Biodiversity?

Chapter Preface

Yes: Human Food Production Methods Are a Threat to the Earth’s Biodiversity.

Industrial Agriculture Is a Major Threat to Biodiversity

Sustainable Table

Industrial agriculture, which employs factory farms to mass-produce just a few animal breeds and crop varieties, is responsible for the loss of genetic diversity among animal and plant species used for human food.
Concentrated Animal Agriculture Is the Biggest Threat to the Environment and Biodiversity

**Humane Society International**
Concentrated animal production facilities, or factory farms, are causing enormous environmental damage and biodiversity loss. Large amounts of animal waste cause water and soil pollution, and the demand for livestock pasture often leads to deforestation.

Slash and Burn Agriculture Results in Tropical Habitat and Biodiversity Loss

**Colin Stief**
Slash and burn agriculture, which involves cutting down and burning natural vegetation to make way for farms, often in grassland and tropical rainforest areas, causes serious environmental damage, including deforestation, soil erosion, nutrient loss, and biodiversity loss.

Genetically Modified Crops Contribute to Biodiversity Loss

**Deniza Gertsberg**
The use of genetically modified crops (GMOs) in industrial agriculture promotes the use of large scale monoculture crops, thus contributing to biodiversity loss and the development of herbicide- and pesticide-resistant diseases and pests.

Commercial Fishing Is a Threat to Marine Biodiversity

**Nick Nuttall**
Fishing is critical to global food security, but overfishing and increasingly destructive fishing techniques are destroying marine creatures and marine habitats around the world.

No: Human Food Production Methods Are Not a Threat to the Earth’s Biodiversity.
Genetically Engineered Crops Have Had a Positive Impact on Biodiversity

Janet E. Carpenter

The impact of genetically engineered (GE) crops on biodiversity is positive. GE crops promote conservation tillage practices, employ environmentally friendly herbicides, reduce the use of insecticides, improve agricultural yields, and reduce the pressure on natural habitats.

Agricultural Productivity Does Not Have to Result in Biodiversity Loss

Jonathan Latham and Allison Wilson

Agricultural experts contend that industrial agriculture is causing biodiversity loss, forcing policymakers to choose between food security and the environment. However, recent studies conclude that agricultural productivity and biodiversity can both be achieved by shifting to small farms and more sustainable farming practices.

Small, Sustainable Farms Can Help Protect Biodiversity in Tropical Forests

ScienceDaily

Small farms that use sustainable agriculture methods are the closest to natural habitat in tropical forests that have been broken into fragments and more likely than large industrial farms to allow migration and protect biodiversity.

Chapter 4: How Can Earth’s Biodiversity Be Protected?

Chapter Preface

Creating Protected Area Habitats Is a Critical Strategy for Conserving Biodiversity

Convention on Biological Diversity

Protected areas that conserve key habitats and allow species migration are a central tool for conserving biodiversity and mitigating climate change. Since the 2004 adoption of a global framework on protected areas, six thousand new areas have been developed.
Setting Aside Protected Habitats Will Not Stop Biodiversity Loss

Tom Zeller

Biodiversity losses continue to mount despite the establishment of protected habitat areas over the past forty years. Other forces such as pollution, invasive species, and climate change cannot be stopped by creating protected areas.

Sustainable Agriculture Is the Key to Preserving Biodiversity

Annik Dollacker and Juan Gonzalez-Valero

Agriculture is dependent on biodiversity, but today there are multiple threats to both. Encouraging sustainable agriculture through government and market mechanisms would increase agricultural yields while conserving biodiversity.

The World Must Move Faster to Conserve Tropical Rainforests

The Economist

Deforestation continues at an alarming rate in tropical areas. The rainforests contain 80 percent of terrestrial biodiversity, so governments must find the funding to pay people in developing countries to preserve them.

Strong Measures Must Be Taken Soon to Prevent Overfishing in Our Oceans

Save Our Seas Foundation

The world's ocean ecosystems are in trouble. Strong action must be taken now to prevent overfishing, which otherwise could cause a complete collapse of world fisheries by 2050.

Addressing Biodiversity Loss Will Require More Political Will and Resources

Elizabeth Pennisi

The world is failing to meet biodiversity conservation goals agreed to in the Convention on Biological Diversity. Governments around the world need to apply more political will and resources to the problem.
Individuals Can Also Take Steps to Protect Biodiversity

Renee Cho

The biodiversity crisis will only get worse as the global population grows. Individuals can help reduce biodiversity loss by consuming less and choosing environmentally sustainable products. A key to this strategy is the use of ecolabels, such as USDA Organic.

Organizations to Contact

Bibliography

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