



**THE BIOLOGY  
MIRROR**  
present

# THE IMPACT OF CLIMATE CHANGE ON BIODIVERSITY

## 1 Understanding Climate Change

Climate change represents one of the most significant and complex environmental challenges of the 21st century. Its far-reaching consequences are reshaping the delicate web of biodiversity, which encompasses all living organisms and their ecosystems.

## 2 Climate Risks

### 1. Rising Sea Levels

Coastal habitats, including wetlands and mangroves, are being submerged, displacing species and reducing biodiversity.

### 2. Desertification

Expanding arid zones, driven by higher temperatures and reduced precipitation, are rendering regions uninhabitable for many terrestrial species.

### 3. Polar Ice Melting

The Arctic and Antarctic are experiencing unprecedented ice loss, threatening cold-adapted species such as polar bears, walruses, and krill.

## 3 Statistics

- Earth's average temperature has increased by about 1.1 degrees Celsius (2 degrees Fahrenheit) since the late 19th century.
- The rate of temperature increase has accelerated in recent decades.
- Global sea levels have risen by about 20-23 cm (8-9 inches) since the early 1900s.





## Climate Change

# Impact on Biodiversity

### Phenological Disruptions

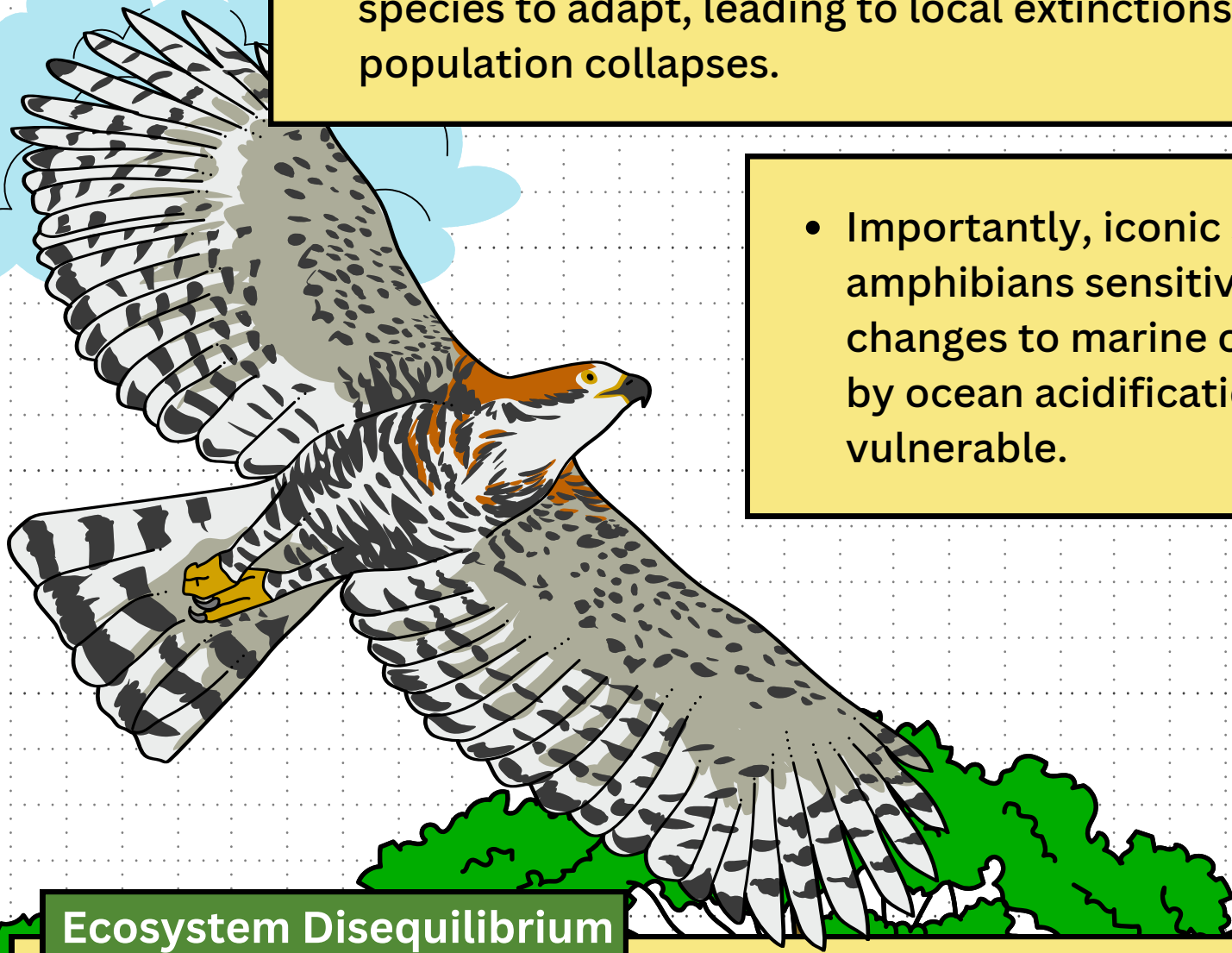
- Warmer temperatures are prompting earlier blooming in plants and altering migration patterns in birds and insects.
- Furthermore, pollinators, such as bees and butterflies, may miss flowering periods, leading to cascading effects on plant reproduction and food webs.

### Accelerated Species Extinction

- For one, rapid environmental shifts often outpace the ability of species to adapt, leading to local extinctions or global population collapses.
- Importantly, iconic species, from amphibians sensitive to temperature changes to marine organisms affected by ocean acidification, are particularly vulnerable.

### Ecosystem Disequilibrium

- **Predator-Prey Dynamics:** Changes in temperature and habitat conditions alter the distribution of predators and prey, destabilizing ecosystems.
- **Invasive Species:** On top of that, warmer climates facilitate the spread of non-native species, outcompeting endemic flora and fauna.
- **Coral Reef Decline:** Regrettably, ocean warming and acidification are devastating coral reefs, which serve as biodiversity hotspots supporting an estimated 25% of marine life.

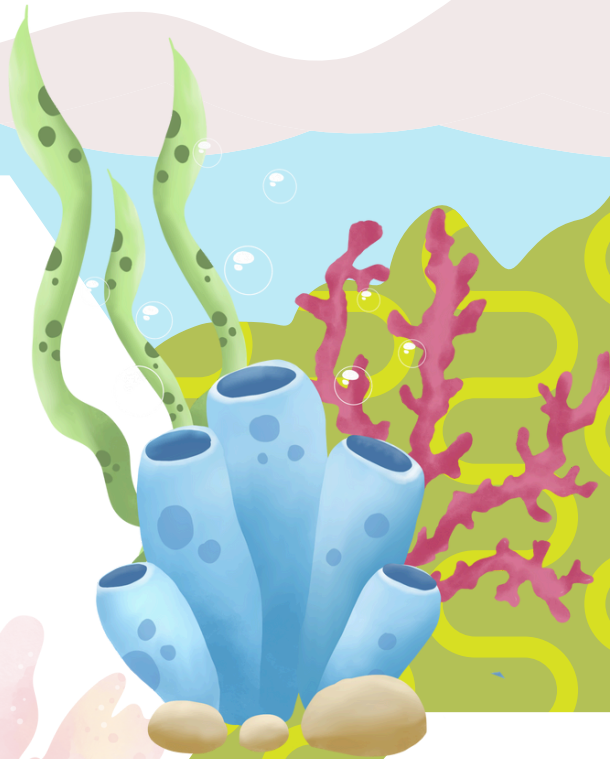




# Case Studies

## Coral Reefs

Once-vibrant reefs, such as the Great Barrier Reef, face widespread bleaching events, threatening marine biodiversity and the livelihoods of millions who depend on these ecosystems.



## Arctic Biome

Species like the Arctic fox, narwhal, and caribou face dwindling habitats as ice cover shrinks, disrupting migratory and foraging patterns.

## Tropical Rainforests

The Amazon, often called the "lungs of the planet," is increasingly threatened by droughts, deforestation, and wildfires, jeopardizing its unparalleled biodiversity.



## Mountain Species

Mountain species, such as snow leopards and alpine plants, are losing habitat as temperatures rise. Many face the risk of being "pushed off the top" with no higher elevation to escape to.



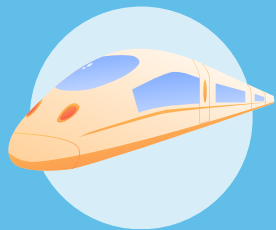




# EVERY DEGREE MATTERS



Remember, our individual choices can add up to significant environmental impact. By adopting these transportation alternatives, we can combat global warming one degree at a time.



## OPT FOR PUBLIC TRANSPORTATION

Choose buses, trains, or trams for your daily commute. By sharing rides, we can significantly reduce carbon emissions.



## CARPOOLING CUTS CARBON

Coordinate with colleagues, friends, or neighbors to carpool. Fewer vehicles on the road mean less pollution and a cooler planet.



## CHOOSE SUSTAINABLE TRANSPORTATION

Explore electric vehicles or hybrids as eco-friendly alternatives to traditional cars. Lower emissions lead to a greener future.







The time to act is **now**. Not just for the sake of the **countless** species that share this planet, but for the survival and prosperity of future generations. **Together**, we can work toward a **future** where biodiversity **thrives** despite the challenges of a changing climate.

Biodiversity is the **foundation** of life, underpinning ecosystems that provide oxygen, regulate climate, and sustain food chains. Climate change, however, **threatens** to disturb this foundation, with **dire** consequences for all life forms.

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# ACKNOWLEDGEMENTS

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