

# CLIMATE CHANGE & WILDLIFE

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There is a strong consensus among climate scientists that the climate on Earth is changing and that humanity's burning of fossil fuels is the leading cause. Not only does climate change affect humans, but it impacts the world's plant and animal species as well. Climate change has already influenced nature in many ways, and as it progresses it will become a primary driver of species extinction.

**The following is a list of ten concerns related to climate change for nature and species.** These threats are often interconnected and can exacerbate the many other existing threats to wildlife such as habitat loss and fragmentation, invasive species, and disease.

- ✗ **Ocean Acidification:** We can only blame ourselves for the 30% drop in the pH of oceans—they absorb nearly a third of the carbon released into the atmosphere through human activity. This acidification renders some crustaceans and coral unable produce their protective shells and skeletons. Coral reefs, which serve as habitat for thousands of marine species, are being destroyed by bleaching due to ocean acidification. This destruction of marine life is a threat to the entire ecosystem humans included.
- ✗ **Extreme weather events:** We've all seen the headlines. 2012 was the hottest year on record in the US. Massive heat waves and drought have already grown more prevalent across the globe, expected to become more severe if the warming trend continues. In drought areas, habitats are altered, and plants and forests suffer from the lack of water. Increased wildfire activity due to hot, dry conditions poses a risk for safety of wildlife. It destroys important wildlife habitats, like the nesting habitat for Mexican spotted owls and forest habitat of endangered Amur tigers and critically endangered Amur leopards in Russia. Stronger and more frequent storms affect the distribution and concentration of the low links on the marine food chain—plankton and krill—thus having a domino effect on many ocean species.
- ✗ **Melting Sea Ice:** Arctic temperatures are rising twice as quickly of the rest of the world and sea ice is melting at an alarming rate. Some of the world's iconic species like polar bears, ringed seals, emperor penguins, and beluga whales all experience distinct pressures due to melting sea ice. For these and other species, disappearing ice disrupts the food chain, hunting habits, reproduction, protection from predators, and the ability to travel long distances—in other words, the foundations of their existence.
- ✗ **Sea-Level Rise:** Sea level rise as a result of expanding warm seawater and melting glaciers will cause disappearance of coastal habitats for birds and sea turtle nesting sites. Whole islands could disappear under the sea, taking terrestrial species with them. For example, the low-lying Florida Keys habitat of the Key deer may be completely swallowed by the sea. Human-constructed defenses against sea level rise will impact habitat of coastal species like the West African Manatee.

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- ✗ **Disease and Pests:** Not only does climate change affect disease in human populations, it also alters the disease behavior in animals as well. The devastating amphibian disease chytrid fungus, likely exacerbated by warmer temperatures, has left many amphibian populations dwindling or extinct. Seasonal pests, like bark beetles in the US, breed longer in warmer weather and thirsty, drought-affected trees are more susceptible to infestation.
  - ✗ **Range Shift:** Ecological communities of plant and animal species—called “biomes”—are shifting as the planet warms. Some species are able to adapt and move while others cannot, and these will disappear with their disappearing habitat. Those that shift upslope to follow shifting habitats, like the American pika and mountain gorilla, can only go on so far before they reach the summit.
  - ✗ **New Species Interactions:** The climate-induced variation of species’ range and related biome shifts cause previously unacquainted species to come into contact with each other. This results in competition for resources and changes in the way predators interact with their prey. For example, red foxes have moved northward toward a warming tundra and compete for prey with native Arctic foxes.
  - ✗ **Invasive Species:** Climate change and invasive species are two major threats to biodiversity. Put them together and the repercussions are projected to be widespread. Climate change will provide new ways for invasive species to encroach on new territory. Natural disasters like storm surges and high winds, which increase in number and severity as the earth warms, spread non-native plants and insects to new territories. For example, the winds of the 2005 hurricane season likely introduced cactus moths to Mexico, where their presence threatens endemic cactus species.
  - ✗ **Interrupted Seasonal Cycles:** So many species are dependent upon climate to guide the patterns of their lives—like mating, reproduction, hibernation, and migration, to name a few. As these patterns shift to reflect changing climate, it causes a ripple effect and hampers the health of the entire ecosystem. The altered timing of animal behaviors that are guided by weather—such as migration by birds, hibernation for bears, bats, and even alligators—will result in mismatched timing between species and their food sources. For example, caribou migration patterns have been disrupted by an earlier flowering season of their plant food source, leading to food shortage late in the season and depleted number of offspring.
  - ✗ **Changes in Human-Nature Interactions:** Melting sea ice opens the Arctic for oil drilling, bringing ships into previously untouched territory of Pacific walrus. Expansion of agriculture and the need for water will lead humans to infringe on native wetlands, destroying habitat of countless plant and animal species. Increased drought activity will force koalas out of the safety of eucalyptus trees in search of water, exposing them to risk of death from road traffic.

This list provides evidence of the significant effects on nature resulting from climate change. Although these facts are frightening and the journey ahead challenging, there is hope. By taking the difficult but necessary steps to decrease carbon emissions, we can give the world’s species hope of a livable planet.

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