

CHANGE THE FORECAST FOR WILDLIFE
SOLUTIONS TO GLOBAL WARMING

How will global warming affect wildlife? Perspectives from the 2007 IPCC report

The 2007 report of the Intergovernmental Panel on Climate Change (IPCC) paints a dire picture for wildlife if steps are not taken to protect species from global warming. Increasing temperatures and associated climate changes directly affect wildlife and the habitats on which they depend. Without intervention to reduce greenhouse gas emissions and to help wildlife cope with a changing climate, chances are that nature will see widespread changes by the end of this century.

Climate warming is “unequivocal” and will continue in the 21st century

Observations of temperature changes in the air and oceans, widespread melting of snow and ice, and rising sea levels all show that the Earth is warming. In fact, the planet is warmer than at anytime in at least 500 years. This warming has been accompanied by changes in precipitation, ocean salinity, wind patterns, droughts, heat waves, and the intensity of tropical cyclones. Most of the observed warming since the mid-20th century is due to the emissions of greenhouse gases from human activities.

By 2100, global mean surface temperatures are projected to be 2 to 11.5°F warmer than today. This continued warming will be accompanied by a suite of climatic changes—such as further sea level rise, reductions in snow and ice cover, shifting precipitation patterns, warming and acidification of oceans, and changes in storms and heat waves—many with direct impacts on wildlife.

North America is projected to warm during the coming century. The southwest United States, for example, is expected to have warmer summers and less precipitation. Winters in the northern United States will be warmer with less snow. Coastal habitats, especially along the Gulf and Atlantic coasts, will be stressed by increasing sea levels and more intense storms. Climate change will also put added pressures on demands for water resources, increasing competition among agricultural, municipal, industrial, and ecological uses.

Wildlife is especially vulnerable

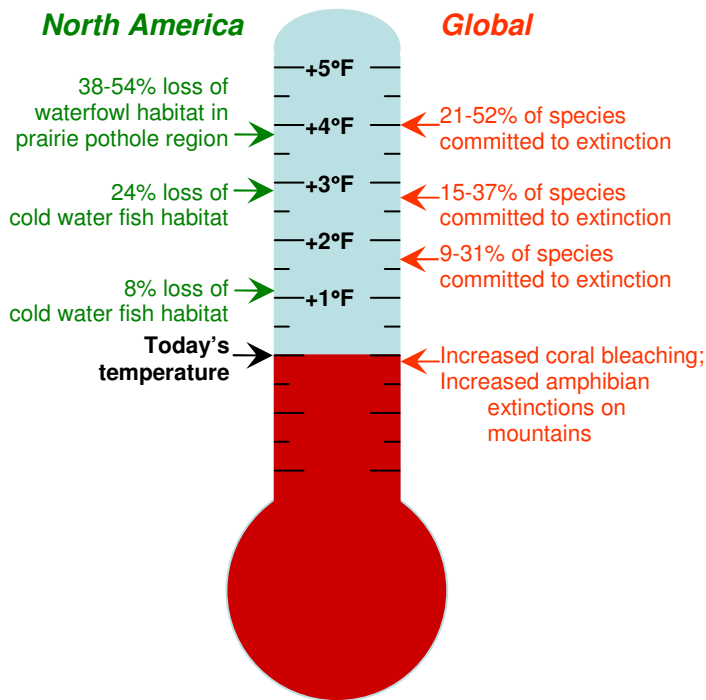
The 2007 IPCC report concludes that the ability of ecosystems to adapt naturally will likely be “exceeded by an unprecedented combination of change in climate and in other global change drivers (especially land use change and overexploitation).” As many as one-third of species are at risk of extinction if global temperatures exceed 2-3°F above present day levels. These extinctions will be accompanied by major changes in the structure and function of ecosystems.

In the United States, we’re already seeing species—such as the Edith’s checkerspot butterfly—shift

What is the IPCC?

The Intergovernmental Panel on Climate Change, or IPCC, is an international body that conducts authoritative assessments of global warming. Experts from around the world synthesize scientific, technical, and socio-economic information about how climate is changing, its potential impacts, and options for adaptation and mitigation. The 2007 IPCC report incorporates input from more than 450 lead authors, 800 contributing authors, and 2500 scientific expert reviewers.

Because the IPCC accommodates the views of so many individuals and organizations, the reports highlight those findings with which everyone can agree. This inclusive approach to developing a scientific consensus may, in fact, make the IPCC prone to understate the risks of global warming.



their ranges further north and to higher elevations, while freshwater fish habitat is being threatened by increasing water temperatures. But, wildlife often has limited options for adapting to global warming. For some species, northward migration is constrained by human development and habitat fragmentation. At the same time, drier soils and longer growing seasons in the future mean more ecological disturbances like wildfire and insect outbreaks, disrupting existing wildlife habitat.

In other cases, the climate is changing so rapidly that ecological connections can be broken as species respond to different climate signals. Significant shifts in bird and insect migration patterns have already been observed. For example, warmer springs have led to earlier nesting for 28 migrating bird species on the east coast of the United States. Some frog species begin breeding 10-13 days earlier than just a century ago. Changes like these could potentially separate animals from important food sources that adapt differently to the changing conditions, ultimately threatening species survival.

We can reduce emissions

To protect wildlife from the most severe impacts of global warming, we need to start reducing global warming pollution immediately. The IPCC concludes that stopping temperatures from rising more than 2°F in the next century will require

reducing global emissions of carbon dioxide and other greenhouse gases by 50-85% by 2050.

With existing technologies and know-how, we can begin reducing our global warming pollution today. But, there's no silver bullet. We'll need to take advantage of multiple different strategies to reduce our dependence on fossil fuels, including:

- using electricity and fuels more efficiently, whether it be in our cars or buildings;
- utilizing renewable fuels, like solar, wind, and biofuels;
- getting more energy out of the fossil fuels that we do burn; and
- capturing emissions before they reach the atmosphere and storing them underground.

We can help wildlife survive

The IPCC concludes that “current conservation practices are generally poorly prepared to adapt” to the expected changes in extinction rates.

Fortunately, there are many options for improving conservation practices to provide an improved safety net for wildlife. Some options include:

- reducing other habitat threats, such as fragmentation, over exploitation, pollution, and invasive species;
- expanding and designing reserve systems with consideration of possible shifts in plant and animal distributions;
- maintaining viable, connected, and genetically diverse populations;
- increasing agricultural productivity, thereby reducing pressures on natural ecosystems; and
- restoring threatened habitats.

Getting on the 2% per year path

The National Wildlife Federation recommends that policy makers, industry, and individuals take steps to reduce global warming pollution by 2% per year. This will allow us to reduce carbon dioxide and other greenhouse gas emissions by 80% by 2050 from today's levels. Science tells us that this is the only way to keep below about 400-450 parts per million of carbon dioxide equivalent and to hold warming in the next century to no more than 2°F.