
SYNOPSIS - *Global climate change and wildlife in North America.*

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It is widely accepted by the scientific community that the earth, which has always experienced climate variation, is now undergoing a period of rapid climate change that is enhanced by anthropogenic atmospheric carbon enrichment during the past 100 years. These climatic changes are accelerating and projections for the next 100 years indicate extensive warming in most (but not all) areas, changing patterns of precipitation, and a significant acceleration of sea level rise. Other likely components of ongoing climate change include changes in season lengths, decreasing range of nighttime versus daytime temperatures, declining snowpack, and increasing frequency and intensity of severe weather events. The many components of climate change and especially the unprecedented rapid rate of change, are just as important as increasing temperatures.

Wildlife species are closely adapted to their environments and readily respond to climate variation. However, as discussed in this technical review, the climate change now underway has extensive potential to affect wildlife throughout North America, either directly or indirectly through responses to changing habitat conditions. When considered in combination with other factors (e.g., pollution, ozone depletion, urbanization, etc.), the potential effect is even greater. The effects of climate change on populations and range distributions of wildlife are expected to be species specific and highly variable, with some effects considered negative and others considered positive. In North America the ranges of habitats and wildlife are predicted to generally move northward as temperatures increase. Variations in this overall pattern will be dependent upon specific local conditions, changing precipitation patterns, and the response of different species to different components of climate change. It follows that the structure of plant–animal communities will also change.

Ignoring climate change is likely to increasingly result in failure to reach wildlife management objectives. Wildlife managers need to become knowledgeable about climate change, ways to cope with it, and ways to take advantage of it. Management options currently available include protecting coastal wetlands to allow for sea level rise, reducing the risks to wildlife from potential catastrophic events, adjusting yield and harvest models, accounting for known climatic variations, and taking climate change into consideration when selecting the location and other characteristics of conservation areas. Wildlife managers also need to expect the unexpected and reduce nonclimate stressors on ecosystems. Overall, wildlife managers can minimize negative impacts to wildlife and take advantage of positive aspects by planning ahead and employing adaptive management.