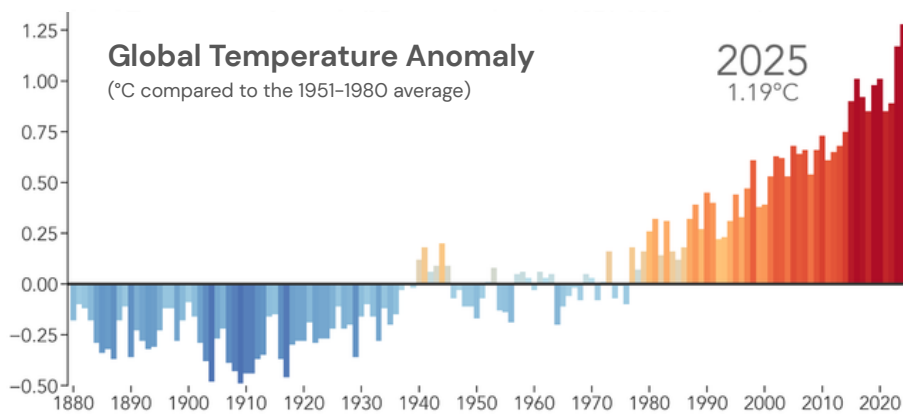




THE
WILDLIFE
SOCIETY

Climate Change & Wildlife Conservation

Climate change is one of the defining conservation challenges of the 21st century. Across the globe, changing temperatures, precipitation patterns and disturbance regimes are influencing wildlife populations. Climate-driven changes in habitat suitability, species distributions, migration timing and ecosystem function often interact with and multiply the effects of other conservation challenges, including habitat fragmentation, invasive species, disease and landscape development. Together, these stressors increase risks to wildlife and the ecosystems upon which they depend, requiring conservation practitioners to develop increasingly adaptive and forward-looking management strategies.



This chart shows the meteorological summer (June, July, and August) temperature anomalies each year since 1880. Credit NASA Earth Observatory/Lauren Dauphin

From TWS Journals:

Given the severity and pervasiveness of climate change impacts on wildlife, conventional paradigms of wildlife management may no longer be adequate to achieve conservation goals



Science, Impacts and Responses

Climate change presents a significant challenge for wildlife conservation, but it also underscores the importance of science-based management. Research published in The Wildlife Society's peer-reviewed journals, including *The Journal of Wildlife Management* and *Wildlife Society Bulletin*, demonstrates how changing environmental conditions are reshaping wildlife populations and ecosystems. These studies provide the scientific foundation needed to assess emerging threats, identify management solutions and guide adaptive conservation strategies. Current focus areas of wildlife climate research include:

Habitat and Range Shifts

- ▶ As temperatures and environmental conditions change, the geographic distribution of many wildlife species also changes. Research has documented shifts toward higher elevations and latitudes in numerous taxa, while other species experience contractions or fragmentation of suitable habitat. These changes can alter ecological communities, increase competition and challenge traditional conservation approaches based on historical species distributions.

Phenological Mismatches

- ▶ Many species rely on seasonal environmental cues to time migration, breeding, reproduction and foraging activities. Climate change can alter the timing of plant growth, insect emergence and other ecological events, creating mismatches between wildlife life cycles and the resources they depend upon. Such disruptions may affect survival, reproductive success and population dynamics.

Wildlife Health

- ▶ Changing climatic conditions can influence the distribution, abundance and activity of pathogens, parasites and disease vectors. Warmer temperatures and milder winters may contribute to the expansion of some vector-borne diseases and parasites into new areas. For example, winter tick (*Dermacentor albipictus*) infestations have become an increasing concern for some moose (*Alces alces*) populations, where heavy infestations can negatively affect animal health and calf survival.

Implications for Wildlife Professionals

Climate change is introducing new levels of uncertainty into wildlife conservation and management. Questions that once seemed hypothetical are becoming central to conservation planning: How do managers conserve species when their habitats shift or historical conditions no longer exist?

Wildlife professionals are now evaluating a range of adaptation strategies, including maintaining habitat connectivity, protecting climate refugia and restoring ecosystem function. They are also assessing emerging tools such as assisted migration for use where appropriate.

Success in a changing environment will depend on maintaining flexible conservation strategies, strengthening partnerships across jurisdictions and continuing to invest in scientific research. By combining rigorous science with practical management, wildlife professionals can help sustain biodiversity, ecosystem function and conservation opportunities for future generations.

USGS Climate Adaptation Science Centers (CASCs) play a critical role in delivering adaptation science that supports natural resource stewardship in a changing world.



Climate change combined with overlapping high-intensity land uses exacerbate dry conditions in arid landscapes. Credit USGS



Map depicting the risk for large fire activity in the U.S. (Sep. 2026). Climate change contributes to wildfire risk and severity. Credit USGS

Building Resilient Wildlife Management Strategies

- **Beyond Restoration**: In many systems, climate change is altering environmental conditions beyond historical ranges of variability. As a result, management increasingly focuses on maintaining ecosystem function, biodiversity and resilience rather than attempting to recreate past conditions that may no longer be achievable.
- **Adaptive Management Tools**: Conservation decisions benefit from flexible, evidence-based approaches that can respond to changing environmental conditions. Adaptive management frameworks, dynamic harvest strategies and ongoing monitoring allow managers to incorporate new information and adjust actions as conditions evolve.
- **Landscape-Scale Collaboration**: The distribution of many wildlife species is shifting in response to changing climatic conditions. Conserving connected landscapes and coordinating management across local, state, federal, Tribal and international boundaries can help wildlife populations adapt to changing habitats and migration routes.



The Wildlife Society's Contribution:

The impacts of climate change manifest uniquely across different taxa and biomes. Maintaining an up-to-date awareness of emerging data is vital. Through its peer-reviewed journals, annual conference, policy efforts, professional network and working groups, TWS supports the development and dissemination of science needed to understand and address climate-related wildlife conservation challenges. Read more at wildlife.org.