Quick Guide to
Climate-Smart Conservation

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Climate change already is having significant impacts on the nation's species and ecosystems, and these effects are projected to increase considerably over time. As a result, climate change is now a primary lens through which conservation and natural resource management must be viewed. How should we prepare for and respond to the impacts of climate change on wildlife and their habitats? What should we be doing differently in light of these climatic shifts, and what actions continue to make sense? This *Quick Guide to Climate-Smart Conservation* offers an introduction to designing and carrying out conservation in the face of a rapidly changing climate.

Making Conservation Climate Smart

The fate of our wildlife and wild places depends on steps we take now to prepare for and cope with the growing impacts of a changing climate, a process known as *climate adaptation.* While managers traditionally have looked to the past for inspiration, increasingly we will be faced with future conditions that may have no historical analogs. Making a transition to forward-looking and climate-smart conservation will require that we pay particular attention to the following overarching themes:

Act with intentionality

We must explicitly consider and address climate impacts—both direct and indirect—in our conservation actions, and be able to "show our work." Most adaptation actions will draw from existing conservation techniques, but may differ in when, where, and why they are applied.

Manage for change, not just persistence

Conservation efforts usually strive to maintain existing conditions or restore back to some historical state. Increasingly, we will be faced with managing system transformations, and may need to focus on sustaining ecological functions, rather than historical assemblages of plants and animals.

Reconsider goals, not just strategies

As conditions change, many of our current conservation goals and management objectives may no longer be feasible. Successful climate adaptation will depend not only on adjusting strategies, but also on reevaluating—and revising as appropriate—our underlying conservation goals and objectives.

Integrate adaptation into existing work

Getting climate-smart strategies implemented can benefit from incorporating them in ongoing work and existing decision processes. Helping managers address near-term challenges in ways consistent with longer-term adaptation needs is especially important for putting adaptation into practice.

What is Climate-Smart Conservation?

Climate-Smart Conservation is the intentional and deliberative consideration of climate change in natural resource management, realized through forward-looking goals and linking actions to key climate impacts and vulnerabilities.

Tom Wood

Key Characteristics of Climate-Smart Conservation

How will conservation practice need to evolve to remain effective in light of rapid climate change? While there are many qualities of good conservation generally (partnerships for instance), this list highlights attributes especially significant from a climate adaptation perspective.

Link actions to climate impacts

Conservation strategies and actions are designed specifically to address the impact of climate change in concert with existing threats; actions are supported by an explicit scientific rationale.

Embrace forward-looking goals

Conservation goals focus on future, rather than past, climatic and ecological conditions; strategies take a long view (decades to centuries) but account for near-term conservation challenges and needed transition strategies.

Consider broader landscape context

On-the-ground actions are designed in the context of broader geographic scales to account for likely shifts in species distributions, to sustain ecological processes, and to promote cross-institutional collaboration.

Adopt strategies robust in an uncertain future

Strategies and actions ideally provide benefit across a range of possible future conditions (including extreme events) to account for uncertainties in climate, and in ecological and human responses to climatic shifts.

Employ agile and informed management

Planning and resource management is capable of continuous learning and dynamic adjustment to accommodate uncertainty, take advantage of new knowledge, and cope with rapid shifts in climatic, ecological, and socio-economic conditions.

Minimize carbon footprint

Strategies and projects minimize energy use and greenhouse gas emissions, and sustain the natural ability of ecosystems to cycle and sequester carbon and other greenhouse gases.

Account for climate influence on project success

Managers consider how climate impacts may compromise project success, and avoid investing in efforts likely to be undermined by climate-related changes unless part of an intentional strategy.

Safeguard people and wildlife

Strategies and actions enhance the capacity of ecosystems to protect human communities from climate change impacts in ways that also sustain and benefit fish, wildlife, and plants.

Avoid maladaptation

Actions to address climate impacts on human communities or natural systems do not exacerbate other climate-related vulnerabilities or undermine conservation goals and broader ecosystem sustainability.

Putting Climate-Smart Conservation into Practice

The *Climate-Smart Conservation Cycle* depicts how the various parts of the adaptation process fit together. Although this cycle mirrors many existing conservation planning approaches, it is designed specifically with climate change in mind. Particularly climate-focused elements include Step 2—assessing climate-related vulnerabilities, and Step 3—reconsidering conservation goals in light of those vulnerabilities. These steps are presented in a linear fashion, but depending on specific needs, one may enter the process at various stages or emphasize different components.

1. Define planning purpose and objectives

This includes articulating the problem to be addressed; clarifying existing conservation goals; identifying key stakeholders and their needs; determining relevant geographic scope, time horizons, and conservation targets; and scaling planning approaches to available resources.

2. Assess climate impacts and vulnerabilities

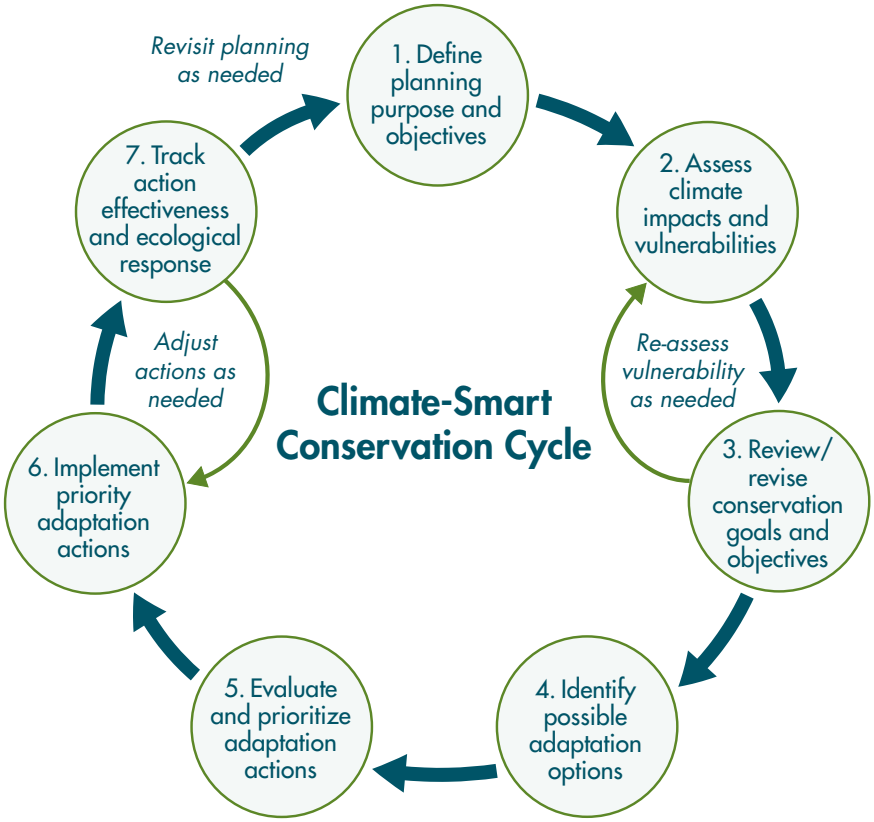
Understanding climate vulnerabilities is crucial for designing effective adaptation strategies, and the specific components of vulnerability—exposure, sensitivity, and adaptive capacity—can provide a useful framework for linking actions to impacts.

3. Review/revise conservation goals and objectives

Because goals serve as the basis for subsequent strategies and actions, they should be climate-informed and forward looking. Re-evaluation of goals and objectives may either validate their continued relevance, or indicate a need for refinement or modification.

4. Identify possible adaptation options

What are possible approaches for reducing key climate-related vulnerabilities or taking advantage of newly emerging opportunities? At this stage, a broad array of alternative strategies and actions should be identified, with particular attention to creative thinking in crafting possible management actions.



5. Evaluate & prioritize adaptation actions

The array of possible adaptation options can now be evaluated to determine which are likely to be most effective from an ecological perspective, and most feasible from social, technical, and financial viewpoints.

6. Implement priority adaptation actions

Successfully implementing adaptation requires individual leadership as well as institutional commitment and resources, and often depends on engaging diverse partners early on, and emphasizing benefits to multiple sectors of society.

7. Track action effectiveness and ecological responses

Monitoring helps provide context for understanding climate-related impacts and vulnerabilities and for informing agile and adaptive management. Monitoring approaches should be carefully designed to ensure they are capable of guiding needed adjustments in strategies and actions.

We Can Make a Difference

Each conservation challenge is unique and there are no one-size-fits-all solutions to climate adaptation. Instead, we need thoughtfully crafted adaptation strategies that take into account not only likely climatic shifts and impacts, but the specifics of the ecological resources, existing stresses and threats, and opportunities for meaningful action. This *Quick Guide to Climate-Smart Conservation* is intended to help practitioners craft such intentional and deliberative approaches to climate adaptation.

Carrying out climate adaptation now can make a difference for sustaining our nation's diverse species and ecosystems well into the future. Indeed, protecting our rich conservation legacy depends on us rising to this challenge.

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For More Information

This *Quick Guide* was prepared by Bruce Stein, Patty Glick, Naomi Edelson, and Amanda Staudt and draws from a forthcoming practitioners guide to climate-smart conservation. This guidance is the product of a workgroup convened by National Wildlife Federation consisting of experts in climate adaptation from: National Park Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, Environmental Protection Agency, National Oceanic and Atmospheric Administration, U.S. Forest Service, Army Corps of Engineers, Maryland Department of Natural Resources, Florida Fish and Wildlife Conservation Commission, EcoAdapt, Geos Institute, National Wildlife Federation, PRBO Conservation Science, The Nature Conservancy, and Wildlife Conservation Society.

Training based on this guidance will be offered through the U.S. Fish and Wildlife Service's National Conservation Training Center (**http://training.fws.gov/**). For additional information about the forthcoming guide to climate-smart conservation and other NWF climate adaptation efforts please visit: **www.nwf.org/climate-smart**.

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