Strategic Habitat Conservation and Climate Change

All effective conservation approaches address several basic questions. First, what are our goals? What species do we seek to conserve and what are our targets for healthy populations of these species? Second, how can we design a conservation strategy to meet these goals? Third, how will we deliver this conservation strategy? Fourth, what type of monitoring will we need to determine whether we've been successful or whether we need to adapt our strategy? Finally, what new scientific research do we need to meet our conservation goals?

Strategic habitat conservation (SHC) addresses these fundamental questions through an adaptive approach to landscape conservation. Landscape conservation initiatives seek to conserve a regional network of open space and shared natural resources for the ecological, economic and cultural values they provide, especially for increasing the resilience of fish and wildlife to climate change or other threats.

SHC incorporates five key principles:

- Biological Planning (setting targets)
- Conservation Design (developing a plan to meet the goals)
- Conservation Delivery (implementing the plan)
- Monitoring and Adaptive Management (measuring success and improving results)
- Research (increasing our understanding)

Because accelerating climate change will profoundly affect wildlife populations and habitats, it is imperative that the U.S. Fish and Wildlife Service and our conservation partners consider the impacts of climate change as we create our SHC framework. In other words, setting realistic and achievable biological targets requires careful consideration of climate change effects on landscape-level ecological processes and functions. Without considering the effects of climate change, we could, for example, set species goals reliant on habitats that will not be available in the future. This would, in turn, undermine our conservation strategy.

The projected impacts from sea level rise provide a clear example: some valuable habitat today will be inundated in the years ahead and therefore not be able to support certain species. We must anticipate these changes and incorporate them into our analyses to meet our conservation goals over the long term.

Similarly, developing and delivering effective conservation designs requires thoughtful consideration of how climate change will affect wildlife and their habitats. We must answer fundamental questions such as "Are we conserving the right places based on the changes we believe lie ahead?"

Climate change makes monitoring and adaptive management more important than ever. The range of predicted impacts from climate change remains broad and the precise timing of these impacts is highly uncertain. These variables explain why we must monitor ecological change and species response, both to understand the results of our strategies and to understand how climate change is influencing the results. Only after we have established robust monitoring schemes will we be able to effectively modify our strategies over time.

Ryan Hagerty/USFWS

Loggerhead sea turtle at Archie Carr National Wildlife Refuge

Climate change also must be integrated into our research focus and other activities aimed at enhancing conservation design and delivery. We must challenge ourselves to identify an environmental baseline for the future that considers the differences in landscape form and function caused by climate change and other stressors on the landscape. Integrating climate change into our research priorities and each of the five SHC elements will greatly assist our efforts to implement successful, sustainable landscape-level conservation.

For more information on SHC, visit http://www.fws.gov/science/shc/

For more information on how the Service is conserving the nature of America in a changing climate, visit http://www.fws.gov/home/climatechange/

April 2010