CAPITOL COMMENTS

Change is in the Climate

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Recently the Boone and Crockett Club released a very thoughtful and comprehensive position statement with respect to climate change. It focused on funding for forest and rangeland habitat management, funding for forest carbon sequestration and restoration projects, and support for energy sources such as nuclear power, clean-coal technology, and forest biomass production. The position statement is a timely expression of the Club's sentiment because Congress has and will continue to debate climate change in this and next year's session.

I recently testified before the Senate Committee on Energy and Natural Resources as well as the Subcommittee on National Parks regarding climate change impacts on some of our nation's most treasured landscapes. I testified before the subcommittee not as an expert in the origin or solution to climate change; rather, as a wildlife professional who has had the opportunity to experience most of the major biomes of this continent and to interact with the professional resource managers responsible for their management.

I testified that climate change, whether a function of natural processes, human processes, or a combination of both, is occurring across the continent. I made this statement based on my understanding of the scientific literature, my discussions with federal, state, and academic scientists, and my personal experiences.

The projected impacts of climate change have been well identified. Warmer and drier climates are expected to result in weather patterns that produce changes in the amounts and patterns of precipitation; increased stream and river temperatures; frequency and intensity of severe weather events; longer and more intense droughts; levels of snowpack and the timing of their melt; more severe wildfires; expansion of the range and distribution of insects, parasites, diseases, and invasive species; and changes in the timing of runoff and intensity of flooding. All of these changes would have impacts on the timing and process of plant and animal lifecycles. Each of these factors alone and in combination, will undoubtedly affect plant growth, structure, and distribution. In turn, they may also directly impact a species' ability to reproduce and survive.

Combine these climate-change impacts to our environment with those caused directly by humans, and the future looks even more challenging. Although scientists report that climate cycles have occurred over the 100,000 years or more of human habitation on earth, during the last hundred or so years we have experienced a rapid rate of global warming and the most rapid increase in human population growth and industrial development the world has ever experienced. The natural world we observe today has responded to and evolved with environmental change over thousands of generations. The rapid human growth and development we have recently experienced has had a dominant influence on the environment in a period of about 100 years, not thousands of generations. The current and future ecological disturbances associated with the combination of climate change, habitat loss and fragmentation, energy and water development, transportation, and invasive species present a near-term, natural selection process and evolutionary challenge which, arguably, has never occurred in a 100- to 200-year time period.

National Park Service (NPS) leaders, regional, managerial, and field staff will face a cultural and organizational challenge as they respond to climate change. The agency must become flexible and adaptive to changing inputs and impacts. Planning documents should incorporate uncertainty, adaptive management processes and plans for an array of potential scenarios that may face the individual park unit depending on the form and manner that climate change shapes their park. This dynamic approach may be uncomfortable for an organization with a mandate and culture of maintaining the status quo as prescribed in the NPS Organic Act of 1916 "in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

> **As we face climate change impacts over the coming decades, our nation's citizens deserve our continued investment in a uniquely American experiment in conservation, setting aside some of our most spectacular lands for protection and public use.**

Adaptation funding will be required in our national parks, forests, wildlife refuges, and state conservation lands to monitor impacts, survey plant and animal species and their distribution, conduct research on climate change effects, distribute water, battle invasive species, repair water control structures, restore and manage habitat, create and protect wetland habitat, and manage current and new threatened and endangered species. Without adequate adaptation funding, natural resource managers will not be able to respond to the obscure and obvious changes occurring across the landscapes for which they are responsible and held in trust for the public.

As we face climate change impacts over the coming decades, our nation's citizens deserve our continued investment in a uniquely American experiment in conservation, setting aside some of our most spectacular lands for protection and public use. This experiment has become so successful that it is the envy of the world. Our nation's past leaders have created a powerful conservation legacy for all of us to use and enjoy. How we treat our national parks and our other public lands will speak volumes about our regard for their work, the value we place on current and future generations, and our own conservation legacy. ■