



# From the Editor

## Climate science in the spotlight

This edition completes our two-issue examination of climate change, focusing on what we know about it and what this knowledge means for park management. Science is critical to understanding the effects of climate change and for analyzing the vulnerability of parks, and is the basis for park management decisions. This look at the science of climate change complements our discussion last spring of adaptation and mitigation strategies for dealing with climate change and the importance of engaging and communicating with the public. Like that issue, this one shares many examples of how park managers are responding to the challenge.

I am not surprised that a resource management issue as universal as climate change garnered articles about parks in the Arctic and subtropics and from sea level to the alpine life zone. Though varied, these articles highlight several pertinent themes. For example, a suite of scientific disciplines and methods are needed to investigate and understand climate change and its effects on parks. Vulnerability assessments are important to identify the susceptibility of resources and to prioritize actions. Models are important, but field observations over long time periods are essential. Climate change science is complex and the demand for it so vast that it is best met through collaboration. A corollary is that with so much information pouring in, scientists need to help managers synthesize and assimilate it into park scenarios.

For me the overriding theme is that climate change is transforming park management in scope and scale and by presenting very tough questions. For example, research projects designed to understand and enhance species resilience may also help address the uncertainties of when to intervene and to what extent, but these remain difficult management judgments. Also, how should we document and prepare for the possibility of natural and cultural resource loss? Given the pervasiveness of climate change and human influence on nature that are outside our control, how should we interpret policies for managing natural systems?

Science is crucial to exploring these issues and supporting park management in addressing them.

Another intriguing facet of this issue is the contrast between the complexity of the science that demonstrates resource change or vulnerability in some articles and the simplicity of the photos. No article exemplifies this more than the feature on changes in Denali's glaciers. Repeat photography reveals dramatic changes in a subset of these glaciers, but only the science tells the more complete and complex story of climate interactions. It takes experts to unravel the story just as it does to communicate it. Climate change is an issue that requires both to facilitate public understanding.



**A thousand words—but which ones?** The effects of climate change on glaciers in Denali National Park are complex. Repeat photography is one technique that helps scientists understand the scale and distribution of the changes.

